GRAPEGROWING • WINEMAKING • MARKETING
JULY / AUGUST 1992

PW PRACTICAL WINERY & VINEYARD

COVER STORY:
Preston chooses flavor over fashion 14

Valley of Zin 20

Biochemistry of yeast growth 40

Protecting grapegrowers payment rights 8

WGLS discovered in Napa County 30

Parasitism controls WGLS at Callaway 34

Livermore Valley growers balance nature and science 36

BULK RATE
U.S. POSTAGE
PAID
BIRMINGHAM, AL
PERMIT NO. 527

The best grapevine for your new vineyard is the Duarte Nursery

Big Pot Benchgraft

10 Reasons Why:

1. Your Choice of Stock, either certified or industry scion stock custom grafted onto your choice of 14 certified resistant rootstocks.

2. The Strongest Graft Union because every scion and rootstock is individually matched for diameter then hand taped and waxed to protect the union as it develops.

3. One Quart Pots allow each vine three times the greenhouse space and twice the soil volume than do conventional paper sleeves.

4. Full Sun Hardened in the central valley to condition and test the vine for your vineyard.

5. Hand Selected for a developed root system and matured top growth before shipping to assure that every vine you receive is ready for planting.

6. Direct Planting with the removable container allows the root system to interface directly with your vineyard's soil.

7. Field Service before, during, and after planting. We will meet you at your vineyard.

8. Free Delivery to most of California's grape growing regions.

9. Guaranteed Stand success rates with our Big Pot Grafts are usually over 98%. We will replace up to 2% of your order free; we will replace any losses over 2% at half price.

10. You can Order Today for spring '92, please ask for Jim or John Duarte at 1-800-GRAFTED (1-800-472-3833) or fax 1-209-531-0352. For special service in Napa and Sonoma, call John Caldwell at Caldwell Viticultural Services (707) 255-1294.

Duarte Nursery also produces #1 field grown benchgrafts and rootings.

DUARTE NURSERY INC.

1-800-GRAFTED

HUGHSON, CALIFORNIA

WITHIN THE FRAMEWORK OF THE WORLD WINE AND SPIRITS WEEK

THE 1st INTERNATIONAL EXHIBITION OF VITI-VINICULTURAL
EQUIPMENT, MATERIAL AND TECHNIQUES

BORDEAUX EXHIBITION CENTER
Nov. 24-27, 1992

For information on SITEVINITECH please complete this coupon today and mail to one of our offices.

NAME: ______ COMPANY: ______

ADDRESS: ______ TEL: (   ) ______

CITY: ______ STATE: ______ ZIP CODE: ______

TYPE OF INFORMATION REQUESTED: ☐ **EXHIBITOR** ☐ **VISITOR** ☐ **PRESS**

INTERNATIONAL TRADE EXHIBITIONS IN FRANCE, INC.

2300 CLARENDON BOULEVARD, SUITE 310
ARLINGTON, VA 22201
TEL: (703) 351-5670 FAX: (703) 351-5671

725 SOUTH FIGUEROA STREET, SUITE 3250
LOS ANGELES, CA 90017
TEL: (213) 688-9297 FAX: (213) 688-9251

JULY / AUGUST 1992 Vol. XIII, No. 2

PW PRACTICAL WINERY & VINEYARD

EDITORIAL
CIRCULATION
ADVERTISING

15 Grande Paseo,
San Rafael, CA 94903
415/479-5819

EDITOR
Don Neel

ART DIRECTOR
Diane Cobb

SENIOR EDITOR
Tamara Croyts

CONTRIBUTING EDITORS
Eleanor Heald
Ray Heald
Carol Shelton
Bruce Zoecklein

CONTRIBUTING WRITERS
Ken Arthur
Don Blackburn
R. Corbin Houchins
Millie Howie
Jay Conrad Levinson
Jake Lorenzo
Julie Morrison
George Schofield
Dr. Wells Shoemaker
Rhoda Stewart
David Storm

ADVERTISING REPRESENTATIVES
Wettstein, Nowell &
Johnson, Inc.
415/472-5400
Fax:415/472-6835

PRACTICAL WINERY & VINEYARD (ISSN 9739-8077) is owned and published by D.F. Neel. Published bi-monthly at subscription rate of $30.00/year. Outside the United States, please add $8.00US, sea mail; $16.00US, air mail. Application to Mail at Second-Class Postage Rates is Pending at San Rafael, CA. Postmaster: Please send change of address to 15 Grande Paseo, San Rafael, CA 94903. Back issues: $5.00 prepaid. News media may use no more that 1/4 page of material per issue provided that PRACTICAL WINERY & VINEYARD is credited.

SUCCESSFUL WINERY

16 Preston chooses flavor over fashion
By Eleanor & Ray Heald

VARIETAL REVIEW

20 Valley of Zin
By Eleanor & Ray Heald

FOOD & WINE

28 Zinfully delicious
By Eleanor & Ray Heald

WINEMAKING

40 Biochemistry of yeast growth
By Peter Bell

GRAPEGROWING

30 Western grapeleaf skeletonizer discovered in Napa
By Ed Weber
34 Using parasitism to control WGLS
36 Livermore Valley grapegrowers balance nature and science

PACKAGING

13 Cork Quality Council forms
14 Eight wineries market-test copolymer corks

MARKETING

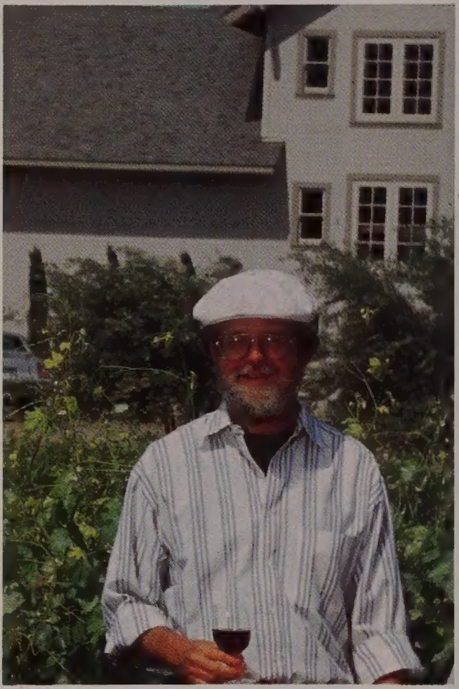
43 *Magic words* of marketing
By Jay Conrad Levinson

DEPARTMENTS

5 In the Cellar
By Jake Lorenzo
6 Wine & Health: *The good, the bad, and the drugly*
By Dr. Wells Shoemaker
8 The Wine Lawyer: *Protecting grape growers' payment rights*
By John MacConaghy
11 Winery, Water & Waste: *Groundwater and wells*
By David Storm

READER SERVICE

45 Bookshelf
44 Advertiser Product/Service Index



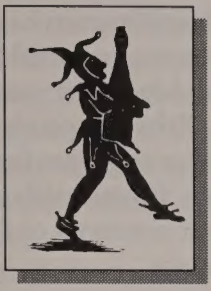
16

Zinfully

20 & 28

36

*COVER: Preston personnel, left to right: Kevin Hamel, winemaker, Lou Preston,Owner, John Clendenen, vineyard manager, Linda Villagomez, marketing
PHOTO BY FRED LYON*



By Jake Lorenzo

On a beautiful spring day, not too long ago, Jake was in the heartland of America. In Cincinnati, OH, for an International Wine Festival, where I had been hired as an expert in International Wine Security, I found myself seated on a prestigious panel addressing the "State of Wine in the 1990s."

As one winemaker after another addressed the more than 60 attendees, I sat quietly, politely doodling on a piece of paper on the table in front of me. I listened to winemakers decry the intrusion of governmental agencies into their business, and moan about tin-lead capsules and the new prohibitionism. I heard them complain about the Chardonnay/Cabernet world and predict an 'ABC' (anything but Chardonnay) world for the 1990s.

I listened while winemakers talked about the healthful aspects of wine, explained new organic growing methods, and described wonderful combinations of food and wine. It occurred to me that wine in the 1990s was going to be a serious, expensive business, and as I sat there, I decided I wanted no part of it.

When my turn came to speak, I presented for the first time my comprehensive "Wine Industry Survival Guide for the 1990s." Here is a short review:

Defend your castle

The wine industry is under attack. It took you a long time to figure it out, but by now most of you have caught on. The first thing to do in any war is secure the homefront.

Jake advises stockpiling a strong, private cellar. Buy now, while it's still legal. Put the wine in cool, dark surroundings. Stash bottles all over your house and grounds. Bury age-worthy reds in your yard like land mines. When the enemy overruns your house, when the government intrudes into your dining room, when drinking wine is no longer allowed in public, be sure you still have access.

The good soldier must think of himself first; only then will he be an effective fighter against the enemy. No wine drinker can fight the good fight if he is deprived of his vinous sustenance. Be sure you have enough on hand for yourself, your loved ones, and your fellow comrades of the cork.

Subversion and incursion

The best defense is a good offense. Once you've secured a sound defensive position; attack. The enemy has been allowed to advance uncontested for too long. We're in no position for a confrontation.

Guerrilla activity is the way to go. Stick and move. Get in, get out. Win the hearts of the common man, and soon you'll have won the war.

The wine industry needs to quit talking to the already-converted, and reach out to the common man. Johnny Appleseed has been and gone. It's time for a Johnny Grapeseed; better yet, a Jake Grapeseed.

Use some humor, and tell people about the simple joy of wine. Let them see the excitement of production, and the natural goodwill of the people who grow grapes and make wine. Teach them that winemaking is farming, natural, and good for the environment.

Remind them that one of the main ingredients in the magical elixir of wine is alcohol. Take pride in its ability to reduce stress, make us laugh, help us have a good time; but don't make it sound like medicine. People don't need to get healthier, they need to get happier.

Clean the nest

The wine industry has been infiltrated. The enemy has intruded so completely into our industry, that we no longer recognize them.

Wine is not million-dollar chateaus, $40 bottles, and triple markups in restaurants. Wine never was meant to be an ass-kissing contest to see who can get the most points or the most medals. We shouldn't agree to ways to lower the amount of wine people drink (*i.e.* drink less, but drink better).

We need to reach the common man. Give him good wine at a fair price. Let people go to a restaurant where they can have a $10 lunch and a $15 bottle of good wine. As an industry, we must encourage restaurants to offer good, lower-priced wines. Jake Lorenzo is sick of seeing nothing but iced tea served at America's lunch table. Pay attention — the people have spoken. They aren't going to pay $30 for a bottle of wine at lunch.

Let's remind wine shop owners that they must seek out the good values and special wines at reasonable prices. They can continue to sell high-scoring, high-priced wines to the suckers who must have them, but for the future of the industry, we must awaken the people to the joys of wine. The people are having a tough time. They need good $6 to $10 wine.

Share

Talk to everyone. Give people wine. Do you have a plumber working at the house? Give him a bottle. Is a painter touching up the trim? Give him a bottle. Is your doctor scheduled to check out the kids? Give him a bottle. Give bottles to the grocery clerks, the person behind the deli counter, your barber, and the trash collector.

Let people in on the secret, and don't treat them like idiots. The working man and woman can't afford to spend a lot of money on wine. Offer them special prices at the winery. Entice restaurants around town to offer special deals. Consider them 'loss leaders' to get people into the store.

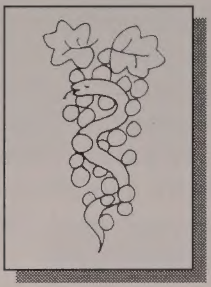
It's simple. Keep your powder dry. Have a corkscrew on hand at all times. Get off your high horse and drink with the fella next door. ■

☆ BATF ☆
LABEL
APPROVALS

4 hours Service
Low per-label costs
Gov't. Liaison Negotiations or Footwork
Reasonable Hourly Rates

TRADEMARK
SEARCHES
As Low as $70

Your trade names or designs are searched at
the U.S. Patent Office to help establish
valuable ownership or avoid
costly legal liability.
Over 100 years' total staff experience handling
every government liaison need for industry.
Phone or write for details.
Government Liaison Services, Inc.
Suite 209, 3030 Clarendon Blvd.
Arlington, Virginia 22201
Mail: P.O. Box 10648, Arlington, VA 22210
Phone: (703) 524-8200 Fax: (703) 525-8451
TOLL-FREE 1-800-642-6564
Major Credit Cards Accepted



By Wells Shoemaker, MD

The good, the bad, and the drugly

Don't Do Drugs. We Can Wait.
Mortuary billboard in Bakersfield, CA

Alcohol and other drugs
Office of Substance Abuse Prevention

Religion is the Opium of the People
Karl Marx

Just Say No
Nancy Reagan

Drug! This four-letter word recently has joined our country's growing lexicon of guttural expletives for our war-time enemies: Rebs, Japs, Krauts, Reds, Gooks.

Drug stores have disappeared from America's Chamber of Commerce. We now have pharmacies.

Drugs have been used by cultures of the world since before the dawn of recorded history. The use of mind-altering drugs and the criminal culture associated with the sale of illegal drugs has turned the very word into a one-syllable emotional dagger, a rallying cry for Americans. We now have a Drug War.

What is a 'drug' that earns such reflexive loathing? In cold pharmacological terms, a drug is a substance — a molecule — that has an effect upon the human body's function.

Are drugs inherently good or bad? The answers, both medical and social, hinge upon the questions:

1. What does it do?
2. How much does one use?
3. Why does one use it?
4. Who decides?

What it does. Some drugs have such one-sided properties that good versus bad seems obvious. The poisonous alkaloid from *Amanita phalloides* mushrooms kills a man in gruesome fashion, while the bitter extract from *Cinchona* bark (quinone) cures malaria.

How much. Many drugs can be either helpful or harmful depending upon dosage. The extract from foxglove leaves, digitalis, can be lifesaving in proper dosage, but lethal in overdose. Conversely, *botulinus* toxin is a ferocious poison in the amounts found in poorly preserved canned goods, yet quite useful therapeutically when diluted and used to relieve muscle tremors.

Why one uses it. Hallucinogenic mescaline from *peyote* cactus has served as part of a traditional, centuries-old, religious ritual in Native American cultures. However, when sold to students on the streets of a modern city, the same substance becomes a criminal commodity. Cocaine was the first medically effective local anesthetic, and it remains a valuable drug for ear, nose, and throat surgery. Yet, obviously, it is a dangerous and addictive drug when used to get high. Human intention, rather than biochemical properties, define good versus bad in these examples.

Who decides. Society's values clearly may dictate whether a drug is good or bad. Wine, for example, is an integral part of religious rituals in both the Jewish and Catholic faiths. Is the alcohol in wine a 'drug' when used in communion, or a sacred symbol? Sociologists might debate, but there would be no debate from an Islamic fundamentalist, for whom the very same glass of wine would be a despicable evil, a sinful indulgence.

Organic drugs?

Most drugs in the world occur naturally and just happen to affect people. The drug effects upon humans, whether good or bad, generally have little to do with the natural functions of the molecules in the living organisms that made them.

The sticky resin from the damaged seed pod of a red poppy relieves pain, induces sleep, and causes constipation in humans. Resveratrol, a natural phenolic compound found in grape skins, protects against fungal attack on the grapes, but coincidentally lowers cholesterol in people.

Taxol from the bark of the Pacific yew combats cancer of the ovary and breast. Quercetin, found in several vegetables and grape wine, has anti-cancer properties in mammals.

People who eat bread made from spoiled grain may suffer excruciating pain, delirium, and death from ergot poisoning. Pharmaceutical amounts of ergot alkaloids can relieve migraine headaches and stanch hemorrhage after childbirth. Aflatoxin, produced by a different fungus in moldy grain, causes cirrhosis of the liver. Ethanol, produced by yeast as bread rises or as grapes ferment, dilates blood vessels. Presumably, these effects are not prime concerns of the fungi that made the drugs.

Better living through chemistry?

The purification, concentration, or synthetic alteration of natural drugs tends to increase their potency and specificity. For example, plain penicillin, a drug produced by a greenish mold, kills the strep bacteria that cause scarlet fever. Chemical modification of penicillin has created antibiotics that kill a much broader variety of disease-causing germs.

Morphine is a more potent analgesic than the crude opium from which it is extracted. Synthetic heroin is more powerful still, both in its pain-relieving effects and its toxic side-effects in overdosage. Coca leaves long have been chewed safely by native Andeans, but purified cocaine powder can cause fatal cardiac standstill, seizures, and strokes in healthy young adults.

Distillation of wine or beer to produce more concentrated ethanol solutions led Thomas Jefferson to coin the term 'ardent spirits.' He also identified them as more harmful than wine to both the individual and society.

In general, the use of purified or synthetic drugs in abusive fashion leads to more dramatic — and more dangerous — effects than do 'natural' drugs.

Abuse and addiction

Drugs of abuse are biologically active substances taken ***intentionally*** and ***voluntarily*** by individuals ***contrary to the prevalent values of society.*** Recalling that these values may differ radically among cultures of the world and epochs of history, we still must ask, "Why would someone abuse drugs and risk both society's disapproval and physical dangers?"

Stated bluntly, drugs of abuse do something that the user ***likes***. Usually this effect involves alteration of state of mind, often a retreat from the reality of grim circumstances. 'Recreational' users take drugs just to have fun or to heighten sexual experiences.

One of the best-advertised consequences of drug abuse is ***addiction***. 'Addiction,' like 'allergy,' tends to be a widely-misused word. A strict medical definition includes several elements:

Tolerance — An addicted individual can use progressively more of a substance before achieving the desired drug effect.

Physical dependence — Withdrawal of the substance causes adverse symptoms that can be avoided by continued use of the drug.

Psychological attachment — An individual develops a craving for the substance, often compulsively searching out and using the substance despite overtly negative physical, emotional, and social consequences. Denial of this dependence characterizes nearly every addicted individual.

The war and the crimes

If society, or one of its respected agents (a doctor), offers a patient a release from painful or desperate straits, society defines the action as humane, compassionate, or therapeutic. In Aldous Huxley's ***"Brave New World"***, the government of a fictional futuristic society dosed its citizens with 'soma' to keep them submissively content.

However, if an individual chooses to dose himself on his own, without permission from society, then the drug use becomes 'bad' and usually illegal. Users become outlaws, but the damage doesn't stop there.

The lack of product integrity of illegal drugs poses a lethal threat: unreliable potency, adulterated drugs, and toxic contaminants all can kill or disable even casual drug users. Deprived of technological advances in packaging and sterility, abusers of injected drugs face mortal health threats from infection.

While the isolation, alienation, lost productivity, and poor health of drug abusers causes predictable personal and family stress, there is a far more socially corrosive consequence of drug abuse. The criminal behavior attached to the sale and distribution of illegal drugs adds a destructive dimension that touches every corner of American life.

Drug users steal relentlessly to pay the inflated prices for their drugs. Dealers kill other dealers to secure the franchise of selling. Governments, including our own, have bartered favors with foreign tyrants over the power and prerogative to make money in illegal drug trade.

Children, policemen, health institutions, schools, and maybe our national conscience are caught in a merciless crossfire of economic privation, social decay, and lead bullets.

In the Prohibition era of the 1920s, alcohol was the focus of this fusillade. Now the production and sale of alcohol is legal. It's also possibly the most meticulously regulated, crime-free activity in the USA. The 'other drugs' are not so blessed.

Alcohol and other drugs

Is alcohol a 'drug?' Surely, yes, without a doubt. Alcohol is a natural, organic substance that has an effect upon the human body. But ... is it a 'good' drug or a 'bad' drug? Again, the answer depends upon the response to these four questions:

1. What does it do?

Alcohol affects mental functions, coordination, blood vessel tone, and urinary concentration, to name a few. It also raises HDL cholesterol.

2. How much do you use?

Clearly, ***excessive*** use of alcohol can cause clumsiness, poor judgment, and poor impulse control. Prolonged heavy use can cause liver disease and heart muscle disorders and may contribute to throat cancer.

Moderate use, on the other hand, causes no measurable increase in chronic disease. In fact, moderate use affords users a 20% to 40% reduction in the risk of heart attacks and a reduction in mortality from all causes, when compared to the extremes of both abstention and abuse.

3. Why do you use it?

If alcohol is used to blot out an unhappy experience or cope with a sense of failure or despair, then this is a 'bad' drug. ***It doesn't work.***

If served to a naive teenager far from the safety and guidance of home, or if served to a drunken man about to drive a car, then this is a 'bad' drug. ***It's dangerous.***

If consumed in large quantities by a pregnant woman, then this is a 'bad' drug. ***It causes birth defects*** in heavy dosage.

If wine is served in moderation with a family meal, admired for its color and aroma, valued for its flavor, and esteemed for the years of skill required to make it, wine more aptly is considered a food. If served to brighten the pleasure of a meal for a person on a low-salt diet, wine is a food.

If wheedled to call it a drug because it contains alcohol, and then obliged to label it 'good' or 'bad,' I would say, 'good,' with conviction.

4. Who decides?

Alcohol in the form of wine on the dinner table is an honored national custom in Italy. In Baghdad, it's a felony. On the altar, it's a communion with God. In high school, it's a felony.

A new prohibition era?

Alcohol, like many substances we use or consume daily, is a drug — one capable of both beneficial and detrimental effects, one with complex interactions with an individual, family, and society.

One-issue alcohol antagonists depict alcohol in any form as a 'drug' in its most toxic and vile connotation. Intelligent, artistic, community-minded people who enjoy wine — or make it — are denigrated with the same tarry brush as crazed, ruthless, drug-dealing gangs. This is a witless and insultingly simplistic tactic.

The question, "Who decides?" reverberates as NeoProhibitionists talk about `Alcohol and other drugs.' These people deliberately ignore such fundamentally crucial issues as dosage, lumping moderate use and abuse as extensions of the same dangerous habit. They ignore centuries of cultural experience and millenia of religious precedent.

The NeoProhibitionists hypocritically deprecate and suppress medical facts that have clear relevance to a nation that loses nearly a million citizens each year to heart disease. Yet they shamelessly exaggerate the value of studies supporting their viewpoint. They righteously lie in public about issues of great sensitivity, such as the threat to the fetus from a mother's light drinking, as though Americans cannot be trusted to handle balanced information.

Conclusion: Just say know

People can be trusted with both the truth and the humble uncertainties of science. No sane person disputes the potential of alcohol, when abused, to cause harm. Rather than seeking bumper-sticker solutions, our country needs to develop a culture of responsible decision-making by both our youth and adult citizens.

Americans need to support medical research to understand the causes and medical therapy to relieve the burdens caused by the abuse of alcohol, while preserving the ability of moderate people to use this 'drug' in a pleasurable, healthful, and legal fashion. ■

*Dr. Shoemaker is a pediatrician, and winemaker of Salamandre Wine Cellars in Aptos, CA. This column has been adapted from one of Dr. Shoemaker's chapters in "**The French Paradox and Beyond**," by Lewis Perdue, published in July, 1992.*

Protecting grape growers' payment rights

By John MacConaghy, Attorney at Law, Koller & MacConaghy, Sonoma, CA

Five years ago, a grower found a 30-acre pear orchard in the Dry Creek Valley, outside Healdsburg, CA. He ripped out the old trees and planted Chardonnay grapevines, installing expensive trellising and a drip-irrigation system.

In 1991, he harvested the first full crop. He paid his consultants, engineers, farm labor, and the tax collector. But now the lender is knocking on his door for payment on its vineyard development loan.

The grower sold his grapes to a highly-touted new winery at a premium price, which will solve all of his cash-flow problems. But there is a glitch. He did not receive payment 30 days after delivery. The 30 days became 60, then 90, then 180. The grower's own creditors have become restless. What can he do?

Few scenarios can be more unpleasant for a grower than to generate and deliver a quality harvest but go unpaid for the effort. Unfortunately, given the economic pressures on the wine industry and the high debt-to-equity status of many wineries and other grape buyers, this grower's situation is occurring with increasing regularity.

Several prominent wineries have filed for bankruptcy in recent months, and it appears that this trend will continue. Growers and all other business people who sell on credit must begin to develop the same financial strategies and instincts as banks to avoid bad credit and minimize the loss when it occurs.

General considerations

A few time-honored principles of debt recovery are universal in application.

First, an ounce of prevention is worth a ton of cure. If you are forced into court to collect for a harvest, you already have lost. Litigation is an extremely expensive and time-consuming endeavor. There is no substitute for a well-capitalized, reputable, and credit-worthy customer.

Avoid buyers who have bad payment histories with other growers. This seems obvious, but it is amazing how many people will overlook a reputation for problem credit when a slight premium in price is offered. **It is not worth it!**

When dealing with an unknown, utilize Dun & Bradstreet or another credit reporting service prior to delivery of your grapes. Many problems can be avoided with a written crop sale agreement providing for: 1) Imposition of interest on overdue payments; 2) payment of attorneys' fees and other collection costs if litigation is required; and 3) retention of a security interest or lien in the crops, their products, and their proceeds. Request personal guarantees of corporate owners and officers; those creditors with guarantees are often the first to be paid.

Second, if trouble is unavoidable, it is almost always advantageous for a creditor to be *secured* as opposed to *unsecured*. Secured creditors have a *lien* on a specific asset of the debtor — *i.e.*, a right to force a sale and/or payment of the proceeds from the sale of a particular asset or *collateral* of the debtor.

The problem with being an unsecured creditor is that, in a liquidation context, unsecured creditors must wait until secured creditors are paid in full until they receive anything. Often, there is nothing left.

In those situations where the collateral is of dubious value, a secured creditor usually can: 1) Recover from the collateral and enforce an unsecured creditor claim for the balance owing; or 2) waive his collateral and elect to have the entire claim treated as unsecured.

Third, most liens are highly technical in nature. Often, specific legal documents, strict time requirements, or a precise set of factual circumstances are required to establish and protect a creditor's secured status.

For example, if a grower has provided for a contractual lien on the crops by written agreement, the lien is not fully enforceable unless it is *perfected* by the filing of a UCC-1 form with the Secretary of State.

Fourth, assuming that it is advantageous for the grower to be secured by a lien, it is important that the lien have relative *priority*. Generally, certain *senior* liens are entitled to be paid off in full before *junior* liens are paid anything. It does no good for a grower to perfect a lien on a $200,000 grape crop if he is junior to a $1,000,000 bank line of credit.

Most wineries/buyers that don't pay their growers are in widespread financial trouble, with a long line of secured and unsecured creditors waiting to be paid. The key is to be at the front of the line as the senior, secured creditor. Fortunately, state and federal statutes permit the grower to do so.

Grape producers' liens

The most important protection to the California grape grower is the agricultural 'Producer's Lien,' set forth in California Food & Agricultural Code sections 55630 to 55653. Under these statutes, a 'producer,' as defined by section 55408, has a lien for the payment price on his crop from the time it is delivered to the 'processor' as defined by section 55407.

The definition of 'producer' includes a grape grower and any other producer of a 'viticultural product of the soil.' 'Processor' includes a winemaker, or any other person 'that is engaged in the business of processing or manufacturing any farm product,' but it does **not** include a retail merchant. Note that a producer of bulk wine for resale to a negotiant or other bottler can be both a 'producer' and a 'processor' under these statutes. Thus, the protections described below apply to him as well.

The purpose of this and other statutory producer's liens was described by the California Court of Appeal in ***Industrial Asphalt, Inc. v. Garrett Corp.*** (1986) 180 Cal. App. 3d 1001, 1006 as follows:

"The traditional policy favoring the laborer or material supplier presupposes that their interest differs substantively from that of creditors, whose interest in real property or chattel remains essentially pecuniary. The laborer or material supplier has invested his labor, or added materials originally in his possession, to improve the property of another and increase its value. They thus have at least in part created the very property upon which the lien attaches..."

The most important features of the Producer's Lien are the following:

First, it extends to both the grapes and the products of the grapes. In short, an unpaid grape grower has a lien on the wine made with his grapes until he is paid.

Second, pursuant to Food & Agricultural Code section 55633, the lien is senior to all other liens except for 1) laborers' claims for unpaid wages; and 2) statutory warehouse liens for storage charges. Secured bank loans and lines of credit, even if perfected by filings under the Uniform Commercial Code, are junior. Under section 55645, multiple Producer's Liens on the same collateral share an equal footing.

Third, nothing other than delivery of goods is required to *perfect* the lien. This is a significant advantage to the grower. Most liens require some action or legal notice to establish the creditor's secured status.

For example, a bank line of credit requires the execution of a Security Agreement and the filing of a UCC-1 form with the Secretary of State. Mechanic's Liens require the filing of various documents with the local county recorder. No such action is required to perfect the priority, secured status of the Producer's Lien.

Fourth, the Producer's Lien only remains in effect until 1) the grower files a lawsuit to enforce the lien; or 2) the grapes or their products leave the possession of the processor, sections 55634 and 55636. After that time, the grower is merely an unsecured creditor. Thus, it is important to take action on a delinquent account before "the horse is out of the barn."

Fifth, in the event the winery or other processor disputes the claim, they have the option to post a bond in order to lawfully sell the grapes or wine during the pendency of the lien dispute. This is usually beneficial to the grower, since a bond is much more readily convertible into cash than fermenting grape juice.

Finally, a provision in the statute requires the State Director of Food & Agriculture to investigate claims of non-payment to lienholders, section 55638.5. This can result in administrative proceedings to revoke the processor's license pursuant to sections 55741 *et seq.*

Note that, although this discussion has referenced California law, most other states have comparable statutes. For example, Oregon growers are protected by Oregon Revised Statutes 87.226 *et seq.* Washington growers are protected by Revised Code of Washington Annotated 60.11.010 *et seq.*

The Perishable Agricultural Commodities Act

One of the limitations of the Producer's Lien is that it only allows the lien to be asserted against 'processors.' It provides no protection to a grower who sells his crop to a broker or other wholesaler. Fortunately, a federal law fills this gap — the Perishable Agricultural Commodities Act (PACA) set forth at 7 U.S.C. sections 499a *et seq.*

PACA provides that both the crop inventory and the proceeds of the resale of the crop are held 'in trust' by the buyer until the grower or his agent are paid in full, 7 U.S.C. section 499e(c)(2). This has practical significance for two reasons.

First, the U.S. Dept. of Agriculture (USDA) can impose substantial penalties on a buyer of 'perishable agricultural commodities' who fails to pay for the goods.

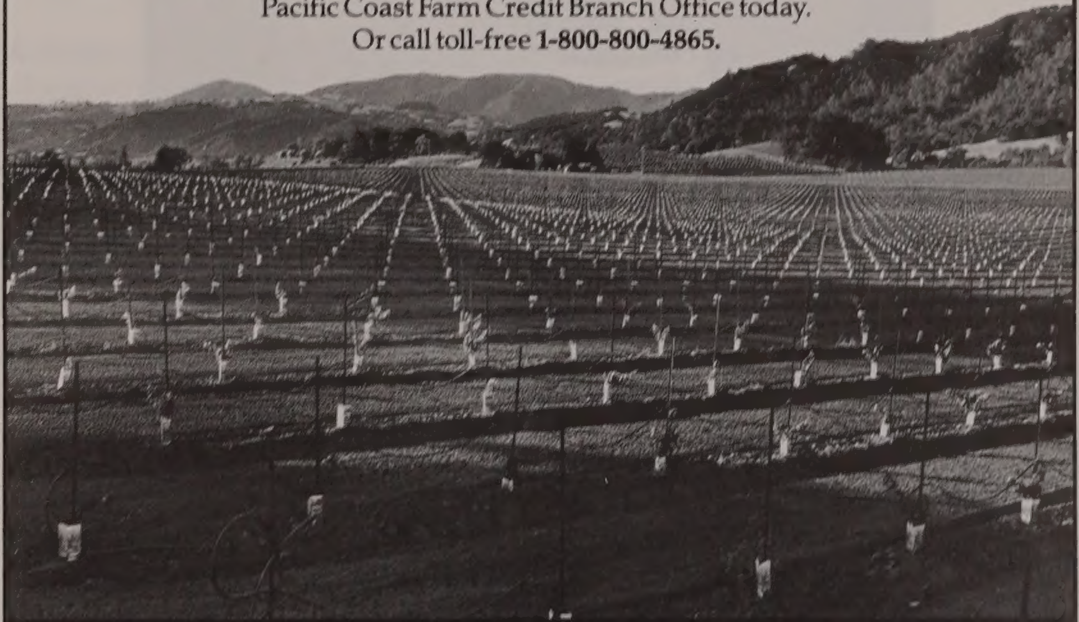
Second, a grower who holds a perfected PACA claim has *priority* over all other creditors of the buyer, such as the Internal Revenue Service or lending institutions, with duly perfected accounts receivable financing, ***Debruyn Produce Co. v. Richmond Produce Co., Inc.***, 112 B.R. 364 (Bankr. N.D.Cal. 1990). This means that, if the buyer mistakenly has paid his bank with the PACA money, the grower can sue the bank to get the money back.

As is noted above, this priority status is essential in the usual situation where there are more liens than the value of the asset. Additionally, priority status often results in the junior creditor, such as a bank, doing all the work and incurring all the attorneys' fees in liquidating the collateral for the benefit of both the grower in the senior position and the junior bank.

The availability of PACA protection to grape growing is somewhat limited. First, 'interstate commerce' must be involved. This is not as formidable as it sounds. It does **not** mean that the grapes must be sold out-of-state. What is required is that some portion of the end product (bottled wine)

You Know How To Plant Your Vineyard;
We Know How To Finance It.

We know because we've been financing vineyards for over twenty years. Which means we have a lot of long-term and repeat customers. Vineyard owners come to us because we've proven we can deliver credit to them on a timely basis. And we deliver it with flexible credit terms and competitive interest rates that meet their specific needs. Whether your needs include fixed or variable rate financing for operating expenses, vineyard development or acquisition, we'll make sure you get the quality of service you deserve. Call your nearest Pacific Coast Farm Credit Branch Office today.
Or call toll-free **1-800-800-4865.**



PACIFIC COAST FARM CREDIT

King City Office (408) 385-5926
Petaluma Office (707) 763-9821
Salinas Office (408) 424-1756
St. Helena Office (707) 963-9437
Ukiah Office (707) 462-6531
Watsonville Office (408) 728-2249
Windsor Office (707) 838-7088

must be marketed so that it is likely to involve some interstate flow of money or product. This broad definition includes virtually all significant American commercial activity.

Second, unlike the California Producer's Lien, which applies to certain wine products as well as to the fruit, PACA only protects fresh or frozen grapes.

Third, also unlike the Producer's Lien, affirmative action is required to perfect the PACA trust fund rights, ***or they are lost, and the grower is treated simply as an unsecured creditor***. Specifically, within 30 days after the payment is due from the buyer, the PACA claimant must send a short Notice of Claim to his buyer, and send a copy to the USDA, 7 U.S.C. section 499e(c)(3).

The required content of the notice is set forth in federal regulations at 7 CFR 46-4(g)(3). The notice must state as to each shipment: 1) names and addresses of the grower or other claimant, the seller-shipper, and the buyer; 2) date of the transaction, contract terms, invoice, price, and the date payment was due; 3) date the grower-seller learned any payment check bounced, if applicable; and 4) amount past due and unpaid. No formal legal document is required; a simple letter containing this information suffices.

Impact of bankruptcy

The filing of a federal bankruptcy petition by an account debtor usually has major implications on the time, manner, and amount of payment. Often, liens and other rights to preferential payment can be eliminated by a bankruptcy. If that occurs, the grower joins the ranks of 'general unsecured creditors' who usually receive zilch in a bankruptcy distribution.

The full ramifications of this ever-increasing phenomenon are beyond the scope of this report, and vary from case to case. However, it is appropriate to note the effect of bankruptcy on the grape grower's Producer's Lien and PACA rights.

Until recently, there was a serious question as to whether a Producer's Lien survived bankruptcy. It was generally thought that a bankruptcy trustee or debtor could disregard the lien pursuant to the statutory powers conferred by 11 U.S.C. section 545 and treat the grower or other producer as merely an unsecured creditor. When the issue made it to court, the growers prevailed. In ***In re Loretto Winery, Ltd.***, 898 F.2d 715 (9th Cir. 1990), the Ninth Circuit Court of Appeal held that bankruptcy could **not** wipe out the lien, and the growers were entitled to maintain their secured status.

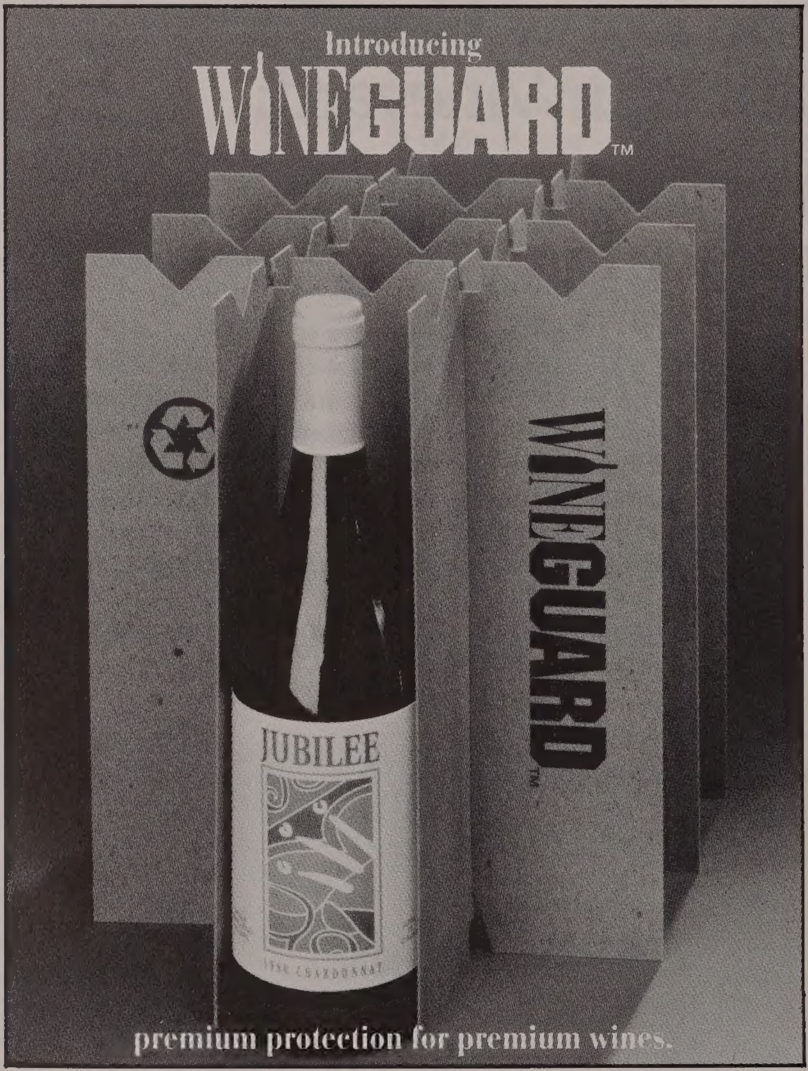
The answer is the same as to PACA rights. Holders of duly perfected PACA trust fund claims are fully protected as priority creditors in bankruptcy, ***In re Milton Poulous, Inc.***, 107 B.R. 715, 718 (9th Cir. BAP 1989); ***In re Fresh Approach, Inc.***, 51 B.R. 412, 419 (Bankr, W.D.Tex. 1985).

Conclusion

No lien or 'trust fund' right is better than a cashed check from a credit-worthy customer. Use your common sense and business instincts in dealing with your account debtors, and attempt to avoid recourse to these involuntary payment measures.

However, recognize that if you are in business long enough, you almost certainly will face a payment problem at some point. When that occurs, it is usually to your benefit to utilize all legal tools at your disposal. ■

John H. MacConaghy is a guest columnist for this issue. Corbin Houchins returns in the September/October "The Wine Lawyer". John H. MacConaghy can be reached at Koller & MacConaghy, 466 1st St. East, Sonoma, CA 95476, tel: 707/935-3205.

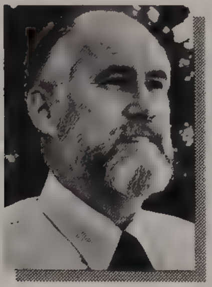


Rock-Tenn Company is pleased to introduce WINEGUARD, the superior inner packaging. Thoroughly tested by a leading independent laboratory, WINEGUARD reduces abrasion of wine labels by as much as 400% as compared to corrugated partitions. Designed specifically for the wine industry using environmentally friendly, 100% recycled fiber, WINEGUARD provides the additional benefits of economy, case size reduction and dust reduction.

WINEGUARD.™ Isn't it time your wines had premium protection?

ROCK-TENN COMPANY

North America's leading independent manufacturer of packaging
and recycled paperboard products. Partition plants located coast-to-coast.
Home Office - P.O. Box 4098, Norcross, GA 30091 404-448-2244 FAX 404-449-0283



Lower back: Structural analysis of wine caselifting

For the last decade, I have struggled unsuccessfully with the simple physio-mechanical problem of the best way to place one case of 12-750mL bottles of wine in the trunk or passenger space of an automobile. The basic mechanics (as illustrated in Fig.1), can be shown for an average human body framework, auto configuration, and average weight of a case of table wine.

This back torture is not exclusive to the wine industry and probably is equalled in functional back stress to putting a 4- or 5-year-old child to bed or replacing a 30- to 50-pound wet-cell battery in a vineyard tractor or in an auto.

In structural terms, that 'moment' of weightlifting is described as: A force tending to produce motion around an axis (torque), or a force multiplied by the length of the lever arm or distance from the point of support, the structural engineer's equivalent of a moment.

The wine-case-to-auto-trunk 'moment' transmitted to the lower back, its supporting muscles, and spinal column is made worse by about 22% if the 12-bottle product is sparkling wine. The heavier, pressure-rated glass adds about eight pounds to the case weight.

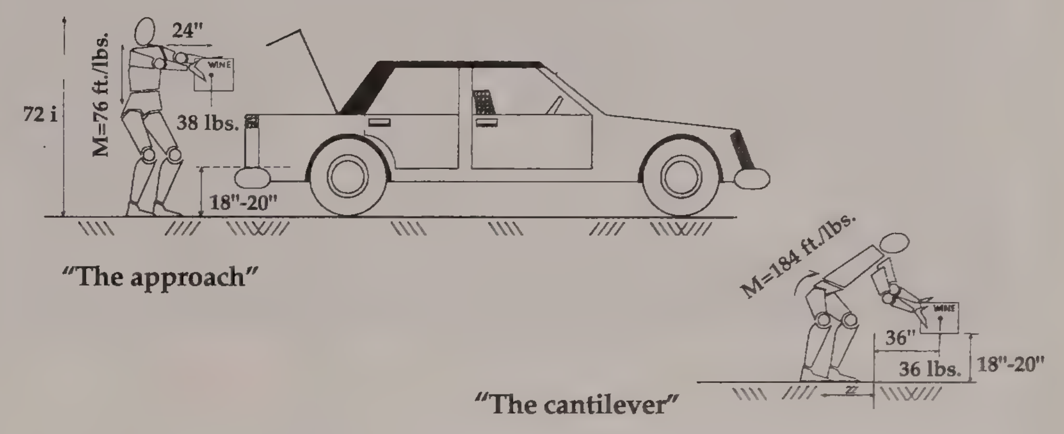
Without resorting to a two-person loading team to solve the back stress problem, only shortening the moment-arm will help. A winery worker clutches the wine case to the chest and then kneels on a piece of sponge-rubber-backed carpet placed on the ground (conveniently hung on a hook on our hand truck). While it may appear strange to onlookers, this method has helped ease the chronic 'tasting-room back' that many of our employees complain of from time to time. (See Fig. 1.)

Lumbar supports — wide, adjustable velcro belts routinely worn by weightlifters — also seem to help force the wearer to lift correctly with the legs instead of the back. The belt comes off as soon as the lifting task is finished, because if it is worn continuously, there seems to be discomfort problems for other tasks.

Special strengthening exercises for the lower back also can assist in preventing chronic problems. The family doctor or a competent physiotherapist can lead the way, through exercise and 'back-sense,' to a relatively pain-free existence. Under no circumstances should a back exercise program be undertaken without professional guidance.

FIGURE 1

Spine physiology and stress analysis



Groundwater and wells *(Part I)*

Can't take it for granted

Resources that are vast but invisible, like the air around us and water under the ground, too easily are taken as 'givens'. Both air and water are essential to our existence and their true value often only is appreciated after their destruction or loss.

Springs are the simplest surface manifestation of groundwater. No penetration of the earth's crust is required nor is any energy needed to lift water to the surface for use.

It is no wonder that early man placed springs and artesian wells (virtually springs under pressure by chance layering of subsurface rock and/or pervious and impervious soil) in the same theistic category as other life-sustaining and unexplainable phenomena of sun, moon, and fire.

Finding it

Groundwater does not occur under all parcels of land where winery developers want to build. A previous "Winery Water & Waste" column (**PWV** Vol.11, No.4, 1990) discussed the importance of a reliable water supply as a prerequisite to acquisition of a winery site.

Some sites are blessed with excellent supplies of groundwater, while others must make the best of what is available beneath the site. It is not easy to make a pre-purchase groundwater assessment for a given parcel.

An existing well or historical groundwater data reported by the U.S. Geological Survey is sometimes the only informative source. A nearby well on an adjacent parcel can be pump-tested. However, neighbors generally are reluctant to allow testing and disclosure of proprietary knowledge.

The services of a geohydrologist often are sought, if published data is lacking. Another, earlier "Winery Water & Waste" column (**PWV** Vol.9, No.2, 1988) described this writer's experiences with dowsers or water witches and how they fit into the search for a good well site.

Developing it

Well-drilling contractors usually have a vast knowledge of local groundwater occurrence and availability and what can be expected in terms of a sustained rate of flow. But as might be expected, there are good well-drillers and not-so-good well-drillers.

At $30 to $40/foot to drill a well, the winery should determine that it does, in fact, hire a competent driller with a good record of happy, satisfied clients and an exemplary record of drilling performance (skillful personnel and reliable equipment). It is wise to secure bids from several drillers. Following is a checklist for evaluating well-drilling bids:

- Does the contractor have a current license to operate, a bonding company to ensure performance, and adequate workman's compensation and liability insurance?
- Call several of the references the contractor should provide with the bid.
- In analyzing the bid, be sure that the cost for accessing the site (access road, fence removal and replacement, drilling pad, etc.) are included.
- Be sure that the contractor clearly understands the specifications for the pump

custom cooperage

24200 Arnold Drive, Sonoma, CA 95476 (707) 996-8781

Pump Systems With A Difference

Difference: We put as much thought and pride into our pumps as the winemaker puts into the wine.

Versatility: Complete line of centrifugal, flexible impeller, positive displacement, and double diaphragm pump heads.

Reliability: All motors are totally enclosed fan-cooled with 115% service capability.

Portability: Polished tubular s/s carts with four polypropylene-hubbed pneumatic tires. All systems mounted for optimum balance.

Controlability: Electro-mechanical, D.C. and A.C. variable-speed controls enclosed in fiberglass or s/s with watertight control devices. All controls can accept remote signals for operation.

Carlsen & Associates

5228 Aero Drive, Santa Rosa, CA 95403 707/576-0632

test to be performed to meet local winery development code requirements.

- If there are nearby wells on adjacent parcels, ensure that the driller or the winery's utility engineer obtain permission from neighboring property owners to record drawdown in their wells when the pump test is performed. (It can be costly if the driller must return to get the drawdown information on another pump test.)
- Does the contractor understand the correct protocol in the event a drilled hole must be abandoned?
- What are the specifications for completing the well? These should include descriptions of casing diameter and material; type of perforations; well screen/well pump horsepower and hydraulic characteristics; responsibility for power supply and electrical details; whether a 'pump saver' is recommended.

The contractor may have a standard contract that, among other things, **does not** guarantee a successful well will be developed. A 'dry hole' is a costly disappointment, but can happen. The winery's legal counsel should review the contract to be sure that the winery's interests will be served.

Well pumps and accessories

Some drilling contractors also provide the well pumps and installation services as part of the contract package. Certainly, the winery's utility engineer should provide planning and design input on the decisions that must be made on pump capability (flow rate at a given well-head pressure) and the size of re-regulating storage. Re-regulating storage should be provided to meet the winery's peak demands and not exceed the sustained pumped rate of the well.

If the well also will provide fire-protection reserve/storage requirements, hydraulic design decisions should be made concurrently. This can optimize the cost of all water-pumping features and storage for both potable and fire protection water.

Part II will explore well-abandonment procedures; well monitoring; well-cleaning and restoration methods; and interpreting the pump test. ■

David Storm is a Consulting Civil and Sanitary Engineer and owner of Winters Winery.

References

Groundwater, *1979. Freeze, R.A. and J.A. Cherry. Prentice Hall Inc., Englewood Cliffs, N.J.*
Groundwater and Wells, *2nd Edition, 1986. Driscoll, F.D. Johnson Filtration Sys. Inc., St. Paul, MN.*
What You Should Know before You Hire a Contractor, *Anon. Dept. of Consumer Affairs Publishing Office, PO Box 310, Sacramento, CA 95802.*

Cork Quality Council forms

Five U.S. cork suppliers have joined together to form the Cork Quality Council (CQC), a non-profit organization dedicated to providing information and sharing technical expertise to improve the quality and consistency of natural corks. The Articles of Incorporation were recently signed by members.

The Council has begun to develop a series of consistent industry standards and professional ethics. All members of the organization are pledged to uphold these standards and ethics.

The standards will help wineries protect their wines by confirming the criteria for evaluating corks by sensory examination, washing techniques, processing, and price. It is the intent of the Council to reduce contamination from TCA (Trichloroanisole) to zero.

Jochen Michalski of Cork Supply International, Benicia, CA, is the first president of the Council. Paul Wagner (Balzac Communications & Marketing, Napa, CA) is the executive director.

The four members in addition to Cork Supply International are: Scott Laboratories, Petaluma, CA; Lafitte Cork & Capsule, Napa, CA; fp Portocork, Napa, CA; and Cork Associates, Napa, CA. Two more suppliers are considering membership in the Council.

How will a winery know CQC-corks are being used? All corks will come in boxes stamped with a 'Cork QC' seal. If a winery desires, a small seal can be put on the cork itself which will be the consumers' guarantee that this is a premium cork. Of course, it will take some time for these bottled wines to get into the marketplace.

The Cork Quality Council is dedicated to working with the wine industry to protect the finest wines in the world with a natural cork. ■

Temecula Valley Wine Society offers scholarship

The Temecula Valley Wine Society has $1000.00 to be awarded to a junior, senior or graduate student who is majoring in Enology, Viticulture, or Wine Marketing. Grade point average should be adequate but involvement and dedication to the chosen major will be very important in choosing a student to receive this scholarship.

Application deadline is August 1 and annoucement will be made August 15.

Students may write for application to:
Temecula Valley Wine Society,
41275 Cruz Way,
Temecula, CA 92592

Malolactic fermentation in wine with

BITEC vino
starter cultures

WESTERN U.S. DISTRIBUTOR:
VINQUIRY
16003 Healdsburg Avenue, Healdsburg, CA 95448
Winemakers Service and Research Laboratory

CONDIMENTA
Dr. E. Rendlen GmbH · Klagenfurter Straße 1-3
D-7000 Stuttgart 30 · Telefon (0711) 81 30 12
Telefax (0711) 89 99 226 · Telex 7 25 22 48

Ten wineries market-test copolymer corks

In 1992, ten wineries in four states will bottle more than 30,000 cases of wine, using copolymer corks made of ethylene vinyl acetate (EVA), which is inert and FDA-approved. The ten wineries are test-marketing small lots of various wines to gauge consumer response to the alternative to natural corks.

Following is the PWV-report from each winery:

◆ Barefoot Cellars

In 1991, Michael Houlihan, of Barefoot Cellars, Healdsburg, CA, test-bottled with Cellukorks™ and, in observing the bottled products during a 90-day period, found no taste problems or leakers. In February 1992, over 100 cases of Cabernet Sauvignon in 1.5L bottles were filled, sealed with Cellukorks™ and distributed.

Additionally, Barefoot Cellars bottled 2,400 cases of 750mL Chardonnay with Cellukorks™ in June 1992.

Houlihan has received no negative consumer response as he strives to produce high-quality products not adverse to the environment.

The chamfered Cellukorks™ with silicone coating make it easy for consumers to recork the 1.5L bottles. Houlihan has encountered no cork-tainted wine or cork particles in the Cellukork™-sealed bottled products.

◆ De Moor Winery

Aaron Mosley, vice-president and winemaker of De Moor Winery, in Napa Valley, CA, bottled 50 cases of 1988 Merlot and 200 cases of 1990 Chardonnay with Cellukorks™. The winery has received no negative consumer response.

In 1992, Mosley bottled 600 cases of Merlot with Cellukorks™.

◆ Ellendale Vineyards

Robert Hudson, owner/winemaker of Ellendale Vineyards, Dallas, OR, bottled over 600 cases of wine with Cellukorks™ in April 1992. This included 400+ cases of 1991 Gewürztraminer, 150+ cases of 1991 Niagara, 150 cases of non-vintage Chardonnay, and 100 cases of Loganberry wine. In 1992, Hudson expects to use Cellukorks™ to bottle a total of 4,000 cases of wine.

◆ Facelli Winery

Lou Facelli, owner/winemaker of Facelli Winery, Woodinville, WA, bottled his entire 500 cases of 1991 Riesling, with Cellukorks™, in April 1992. He released them for sale in summer 1992 to four states: Washington, Idaho, Oregon, and California.

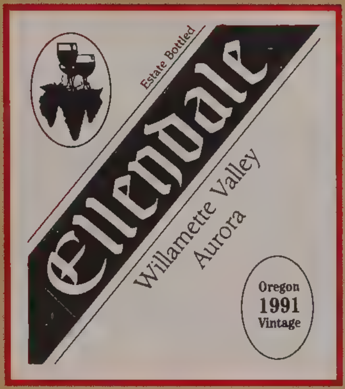
◆ Fenn Valley Vineyards

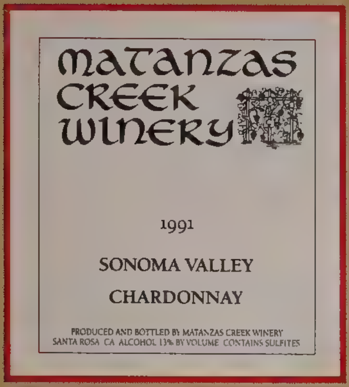
Doug Welsch, co-owner/winemaker of Fenn Valley Vineyards, Fennville, MI, bottled several cases of Flite, a de-alcoholized wine, in August 1991, with TAGE expanded cellular corks, made of EVA. He evaluated the bottled product for sterility and found no significant flavor differences or oxidation.

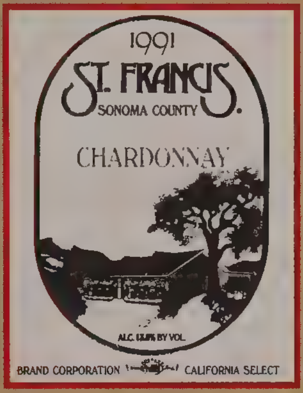
In February 1992, over 250 cases of Fenn Valley product were bottled with TAGE corks. The products were: 1991 Blush, 1991 Riesling, 1990 Chancellor, 1991 Flite red, and 1991 Flite white. At least 20% of each product received TAGE corks while the remainder of each lot received natural corks. Welsch is anxious to see how consumers respond and expects to bottle at least another 100 to 150 cases with TAGE corks in 1992

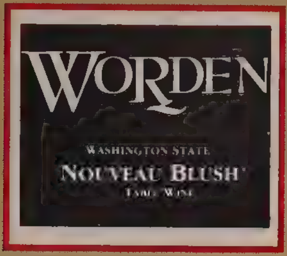
◆ Knudsen-Erath Winery

Dick Erath, owner/winemaker of Knudsen-Erath Winery, Dundee, OR, bottled all 2,300 cases of 1991 Riesling with Cellukorks™ in April 1992, and they were released in June to Oregon and Washington. Erath is anxious to receive consumer reaction.

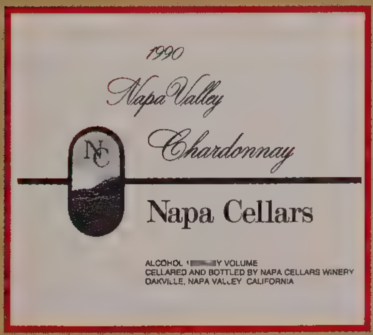



MATANZAS CREEK WINERY
1991
SONOMA VALLEY
CHARDONNAY
PRODUCED AND BOTTLED BY MATANZAS CREEK WINERY SANTA ROSA CA ALCOHOL 13% BY VOLUME CONTAINS SULFITES





Fenn Valley
1991
Lake Michigan Shore
JOHANNISBERG RIESLING
A Semi-Dry White Table Wine
ESTATE BOTTLED
PRODUCED AND BOTTLED BY FENN VALLEY VINEYARDS • FENNVILLE, MICH


1990
Napa Valley
Chardonnay
NC
Napa Cellars
CELLARED AND BOTTLED BY NAPA CELLARS WINERY
OAKVILLE, NAPA VALLEY CALIFORNIA

Matanzas Creek Winery

Bill Parker and Susan Reed, co-winemakers, bottled four cases each of 1990 Chardonnay, 1990 Sauvignon Blanc, and 1991 Sauvignon Blanc with Cellukorks™. Several blind tasting trials were conducted and there were no detectable differences.

The entire 1991 Chardonnay bottling (over 12,000 cases) was done with Cellukorks™.

Montinore Vineyards

Jeffrey Lamy, winemaker/general manager, conducted elevated temperature soaking tests of Cellukorks™ and found no taint or off-flavors.

In 1992, Montinore will bottle the following with Cellukorks™: more than 1,200 cases of non-vintage Pinot Noir in 1.5L bottles for a suggested retail price of $7; 5,000 cases of 1.5L bottles of a dry white, off-dry white, and a blush in the Oregon Collection series, and over 5,000 cases of 750mL bottles of Chenin Blanc, Gewurztraminer, Muller-Thurgau, Sauvignon Blanc, and White Riesling to be sold under the Montinore label between $5 and $6 retail.

St. Francis Winery

In July 1991, Tom Mackey of St. Francis Winery, Kenwood (Sonoma Valley), CA, bottled five cases of Merlot with Cellukorks™, and left the bottles standing cork-up. Monthly, he observed for leakers, tasted the wine, and measured the total SO_2, finding no significant change. In December 1991, satisfied with the results, Mackey ordered Cellukorks™ for commercial bottling in 1992.

Over 2,000 cases of 1991 Chardonnay (8% of 27,000 cases total Chardonnay) were bottled in April 1992 and released in May. Four cases of bottles sealed with Cellukork™ were added to each pallet of cases with bottles containing natural corks. The bottles of wine with Cellukork™ have a special back label inviting consumer comments.

Also in early 1992, St. Francis Winery bottled 50 cases each of 1989 Cabernet Franc and 1989 Cabernet Sauvignon, using Cellukorks™. These will be poured/sold only in the winery tasting room. Cellukorks™ were also put into 150 cases of 1990 Zinfandel and 250 cases of 1991 Gewürztraminer, for national distribution. All these bottles have the special back label inviting consumer feedback.

Worden Winery

In 1991, Paul Vandenberg, winemaker of Worden Winery, Spokane, WA, test-bottled 15 cases of wine with Cellukorks™. Over six months, the bottled wines were analyzed for taste, change in total SO_2, and change in head pressure. Changes were negligible, according to Vandenberg.

Vandenberg bottled 150 cases of 1991 Blush with Cellukorks™ and released them for sale as a market test. In the same way, he plans to bottle over 2,000 cases of Chardonnay, Chenin Blanc, Cabernet Sauvignon, Gewürztraminer, Merlot, and Riesling, in various size lots in 1992. ■

Cellukorks™, are manufactured by Lermer Packaging Corp., 520 South Ave., Garwood, NJ 07027, tel: 908/789-0900, fax: 908/789-0235 and at 1700 S.Hellman Ave., Ontario, CA 91761, tel: 800/472-7781, 714/947-3756, fax: 714/947-9892. In California, they are distributed by Berlin Packaging, 1957 Davis St., San Leandro, CA 94577, tel: 510/562-7201, fax: 510/562-4387; in Oregon/Washington: Wine Supply Inc., 2758 NE Broadway, Portland, OR 97232, tel: 503/ 287-2624.

TAGE corks are manufactured and distributed by APM, Inc., 441 Industrial Way, Benicia, CA 94510, tel: 800/487-7555 (throughout North America), 707/745-8060, fax: 707/745-0371.

Preston chooses flavor over fashion

By Eleanor & Ray Heald

Since 1973, Lou Preston, with his wife Susan, has farmed 125 acres of vineyards in Sonoma County's Dry Creek Valley, outside Healdsburg, CA.

Preston has put flavor before fashion and his extensive product line showcases this. Other producers might be scared to death of the marketing prospects entailed in producing and selling a new style of Sauvignon Blanc; Zinfandel; four Rhone/Mediterranean-styled wines (Varietal Syrah, Syrah-Sirah, Estate Red, Muscat Brule, and Barbera); Chenin Blanc; Cabernet Sauvignon; and Gamay Beaujolais. Not Preston.

Preston runs a thoroughly modern winery, with a good mix of old-fashioned ideas and the all-too-uncommon business horse-sense. Preston wines (30,000 cases/year) are distributed in all major U.S. markets, western Canadian provinces, selected western European countries.

Searching for a site

Preston came to Dry Creek Valley with a background in grapegrowing, from U.C. Davis extension courses and hands-on experience farming his parents' property in Healdsburg.

In 1972, severely smitten by the vineyard bug, Preston began to search for property to call his own. He was guided in his selection by Americo Rafanelli, who knew of a land-locked easement at the 'warm end' of Dry Creek Valley with no direct access to Dry Creek Road.

The soil essentially was well-drained, creek-bottom deposits. Prospects of Pierce's disease problems didn't enter Preston's considerations, because 20 years ago, it wasn't even discussed at U.C. Davis.

(Today, Pierce's disease is addressed by establishment of a weed-free buffer zone around the vineyard to reduce the influx of the disease vector, a xylem-feeding sharpshooter. In addition, there is an aggressive replanting program in the vineyard. "Insecticides in the vineyard have not proven effective," reports vineyard manager John Clendenen. "Once the vine is infected, it dies within two to four years.")

Preston purchased the original parcel in 1973 and within a year, adjacent parcels, providing road access, became available. The local climate confirmed elimination of Chardonnay, Riesling, Gewurztraminer, and Pinot Noir from planting considerations.

Left to right : Kevin Hamel, winemaker; Lou Preston, owner; John Clendenen, vineyard manager; Linda Villagomez, marketing.

"I went with Sauvignon Blanc as the best bet for a white varietal," Preston recalls. "The second choice was Chenin Blanc. Planting both varietals proved to be good decisions.

"In one location, Barbera made the best soil match for a red. It stands alone well as a varietal bottling and makes an ideal blending wine for Zinfandel which was the classic choice for upper Dry Creek Valley.

"Choices that were not so good included planting Cabernet Sauvignon on light, silty, gravelly soil. The vines, as we soon found out, got too much stress because they were ill-suited to the soil." In 1978, those vines were budded over to French Colombard. "It made a very good wine, but it was difficult to sell," Preston says. In 1990, these same vines were budded to Viognier and Marsanne for Preston's new white Rhone program.

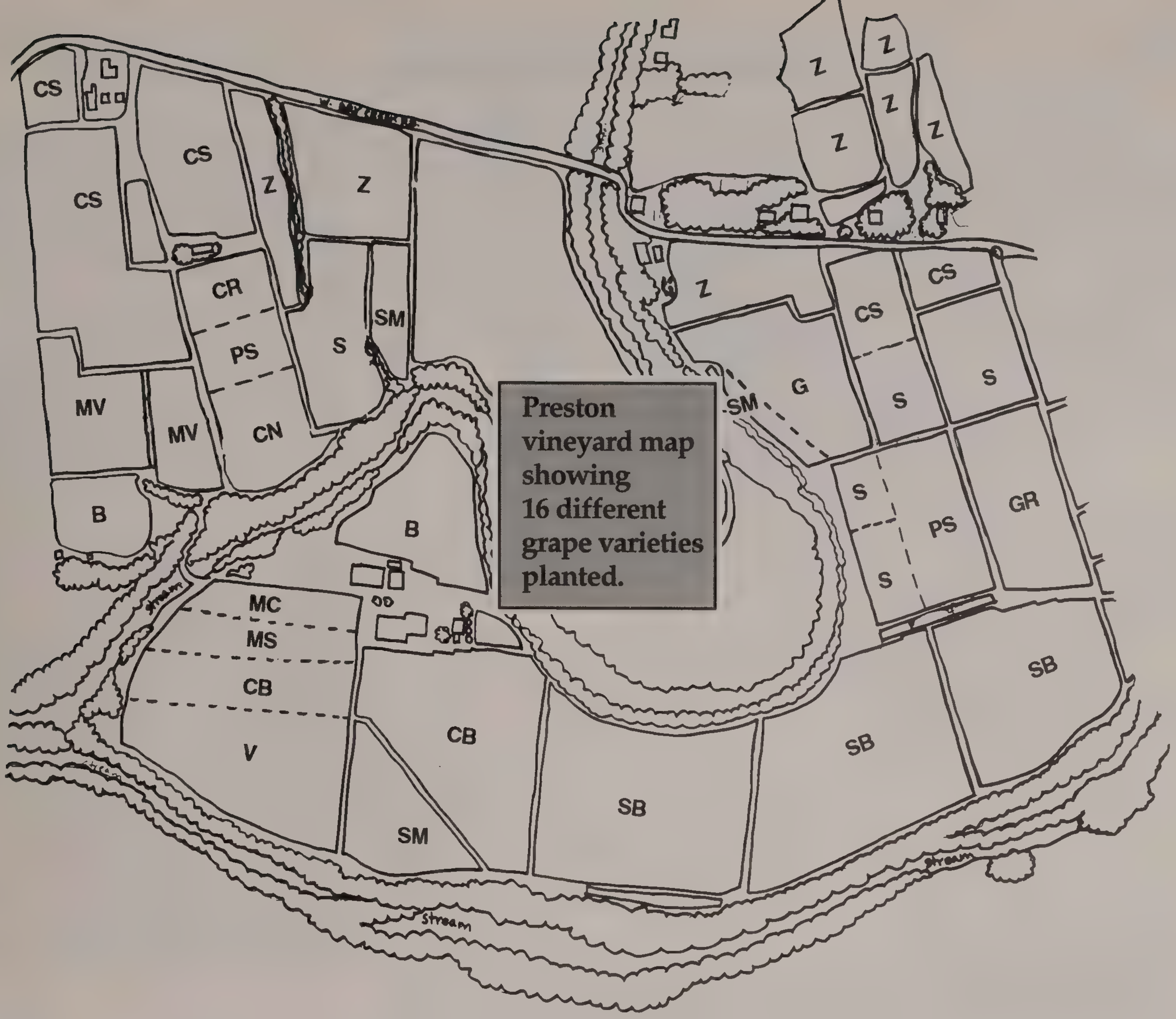
The 1991 harvest produced the first commercial Viognier (600 to 800 cases) for major market introduction in 1992.

Rhone transitions

"After a decade of experimenting, we've made a major commitment to Rhone varietals because they are ideally suited to our soils," Preston maintains. "Rhone wines are a category that can pay their way."

Clendenen contends that the Viognier budwood is clean. "When we were ready to plant, we looked at everything available in the state," he reports. "There were heavily virused imports from France or vines prone to shatter from the Geneva test station in New York. The last wood that Austin Goheen certified at U.C. Davis was Viognier and that's what we have."

Preston bought all the Viognier budwood the university would sell, and planted it. Propagation from that wood eventually filled up five acres (75% drip-irrigated) planted 8x12 on a bilateral cor-



Preston vineyard map showing 16 different grape varieties planted.

BARBERA	B	CINSAULT	CN	MOURVEDRE	MV	SEMILLON	SM
CABERNET SAUVIGNON	CS	GAMAY	G	MUSCAT	MC	SYRAH	S
CARIGNANE	CR	GRENACHE	GR	PETITE SIRAH	PS	VIOGNIER	V
CHENIN BLANC	CB	MARSANNE	MS	SAUVIGNON BLANC	SB	ZINFANDEL	Z

don with a 24-inch cross arm. Reports of the vine's vigor have not borne true. At this point, it appears to be a moderate grower at Preston Vineyards and no leaf-pulling was done in 1991.

Almost two acres of Marsanne from La Jota budwood was planted way back when Preston was learning about white Rhone varietals. "So far, it seems to be a late ripener," Clendenen comments. "Overall, it's extremely fruitful, but thin skins and tight bunches make it susceptible to mildew and rot. It's a popular varietal in the Rhone and we believe it shows great potential. We have a limited release of Marsanne in 1992 from the 1991 harvest.

Inspirations

"We planted Petite Sirah early on," Preston reveals. "Was this serendipity? Inspiration? It's hard to say now. All I know is that from the beginning, we were attempting to match soil type to varietal, given the best knowledge available at the time.

"There was a small block of Petite Sirah on the property when I purchased it. In the process of looking for budwood, I became aware of this 'other' variety: Syrah. At the time, I thought it was related to Petite Sirah. In 1976, we made the first plantings from two sources, Joseph Phelps Vineyards and U.C. Davis.

"I want to produce Rhone-style wines because I like the way they taste and I believe they have a whole lot more interest than many 'traditional' California premium wine grapes.

"This is partly a financial decision. We have a very expensive vineyard location. Each of the individual blocks, where we've matched soil type to varietal, requires individual attention. While we are looking to make wines with broad flavor interest, we believe Rhone wines will pay their keep in the marketplace and make a return on the investment."

Subsets of Rhone types

In 1989, when an old Zinfandel vineyard required replanting, Grenache, Cinsault, and Mourvedre were planted along with with Syrah, to make a complementary blend in a southern Rhone, Chateauneuf-du-Pape style.

In 1991, another well-drained, rocky parcel planted to Zinfandel on St. George rootstock was not faring well. It was chip-budded to Grenache.

At the time of purchase, some Cinsault existed on the property. Today, three acres of 3309 rootstock have been budded to Cinsault.

Many of the new Rhone varietal plantings are spaced 6x8 on a vertical

Corks

All grades and sizes exclusively from Sociedade Industrial de Corticas/Portugal. Inventoried, processed, and packaged in Napa for prompt delivery.

Capsules

Lafitte can supply the following environmentally-sensitive capsules:

Tin ☆ Aluminum
drawn/seamless capsules from Lafitte/France in a variety of sizes, excellent decoration capability, meeting environmental regulations.

Aluminum Polylaminate
produced in Napa in an assortment of stock colors compatible with standard glass neck finishes.
NO machine alteration.

Non-Metal Shrinkable Capsules
formed in Napa from stock or custom colors in PET or PVC shrinkable film; flexible delivery and quantity.

Lafitte
CORK & CAPSULE

908 Enterprise Way • Napa, CA 94558
Tel: (707) 258-CORK
Fax: (707) 258-0558

trellis. St. George rootstock is used on low-vigor parcels, even though these vines are drip-irrigated. Canopy management techniques are not defined yet.

Two acres of Mourvedre, planted in 1988, became five acres after budding in the fall of 1991. The vines have tight, heavy bunches with vertical growth. It's a thick-skinned, late ripener.

To complement the program in 1988 and 1989, an additional 3.5 acres of Syrah were planted.

In time, the Syrah-Sirah will be phased into a 100% varietal Syrah with planned production of 1,000 cases/year. Additional Syrah will find its home in a Rhone-style blend with Grenache, Cinsault, and Mourvedre.

Throw in some Pets

For two decades, Preston has performed tests and trials in the estate vineyards. For 15 vintages, there has been experimentation with unusual blends. But for more than 100 years, Preston's Dry Creek Valley home has been a prime red-wine producing region.

Preston recalls that during Prohibition, home wine-makers around the country would comb the trucks and flat cars looking for lug boxes from Dry Creek Valley. They'd request Zinfandel, but they'd also say, "Throw in some Pets (Petite Sirah) if you've got'em." With the production of Zinfandel and Sirah-Syrah, Preston continues the heritage of Dry Creek Valley.

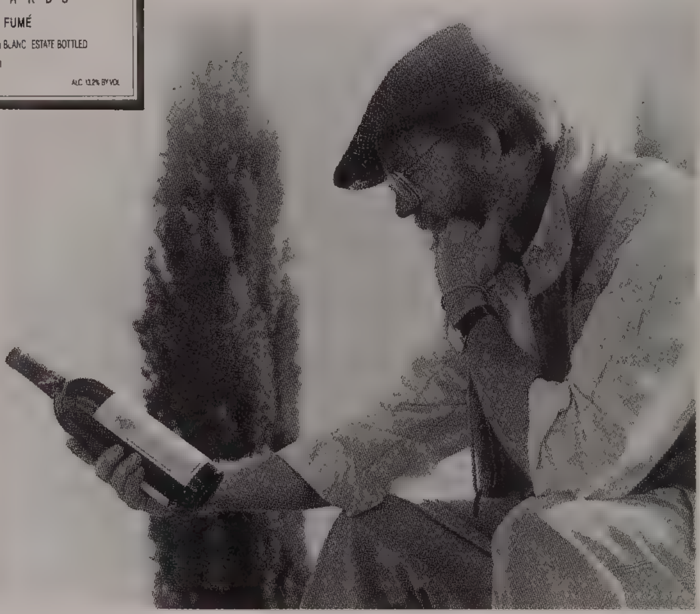
Preston believes that the newer clones of Zinfandel propagated at U.C. Davis produce enormous quantities of fruit at the expense of color and flavor. His older selections have smaller berries and are less productive. But they produce superior quality fruit.

An original ½-acre of 100-year-old Zinfandel vines became, through careful selection, the mother block for an additional six acres of Zinfandel.

This 'favorite' clonal selection comes from a steep hillside plot behind Preston's home. It's referred to as the 'Guadagni' clone after the family who planted and farmed the vineyard at the turn of the century. The plot produces less than a ton of grapes annually, "but the wine comes closer to our ideal Zinfandel than any other," Preston reports. "The wine has concentrated blackberry aromas with subtle notes of pepper and spice. It has substantial body with moderate tannins and a firm acidity."

The 'Bell' clone (again named after the original owners) has jammy, spicy aromas, and soft texture. "When blended with other lots, it contributes opulence to the blend," winemaker Kevin Hamel affirms.

'Vogensen,' a bench vineyard purchased in 1981 from Preston's neighbor, Joe Vogensen, is the source of a heavily extracted, tannic wine.



> ***"If we get some very strong signals from the market, we'll follow them, but right now, we're having fun making all these wines and they all have a good home around the country. Philosophically, we like developing vineyards and wines for their flavors, not because they are expected in the marketplace."***
>
> **—Lou Preston**

"Without blending, Zinfandel can be somewhat one-dimensional," Preston contends. "Several selections are desirable in a blend." The Preston blend is composed of 80% Zinfandel (multiple lots) usually less than 10% Carignane, and Hamel throws in slightly more than 10% of the 'Pets.'

Stylistically different Cuvee de Fume

From 1982 to 1989, Preston Cuvee de Fume has included Semillon and Chenin

Blanc in the blend. "This was a Sauvignon Blanc with training wheels," Preston reveals. In 1984, the first Estate Reserve Sauvignon Blanc was released. The intent was to express flavors born in the vineyard.

"Today, wine consumers expect a certain amount of grassiness in a Sauvignon Blanc," Preston says.

With the 1990 vintage, Preston made a philosophical departure. Wine labeled Cuvee de Fume became the winery's sole Sauvignon Blanc bottling. All the Sauvignon Blanc/Semillon blocks are used to build this wine that's about 80% Sauvignon Blanc and 18% to 19% Semillon. It's 45% barrel-fermented in 38% new barrels. The Chenin, formerly in the 'Cuvee' wine, will find a home in the varietal Chenin Blanc.

"We've planned aggressive marketing at $8 to $9 in major markets," Preston maintains.

Sustainable organic viticulture

In 1988, the decision was made to limit the number of insecticides used in the Preston estate vineyards. "In 1989, we went cold-turkey with conventional insecticides," Clendenen reports. "We reviewed our fertilizing program and planted green manure cover crops."

During the 1989 growing season it was discovered that leaf hoppers were fairly easy to control with soaps, oils, and plant-based insecticides such as pyrellin, made from chrysanthemums. Preston chose to use primarily methods that could be certified by the California Certified Organic Farmers.

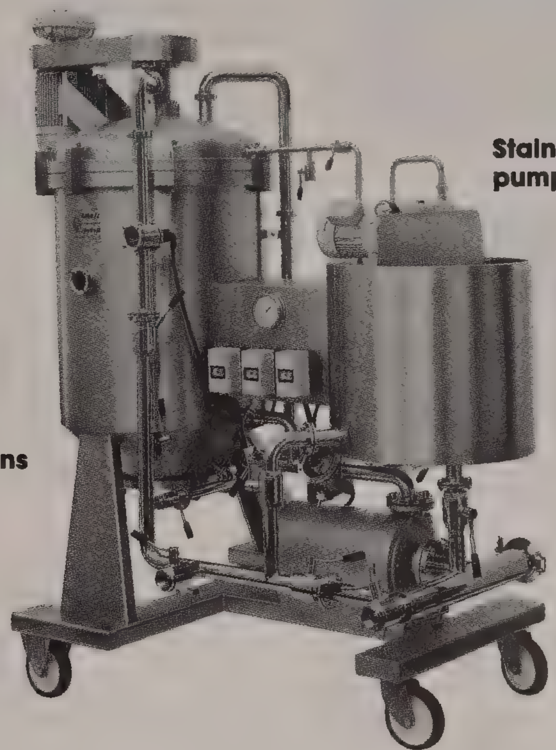
"Mites proved to be the biggest problem of all," Clendenen maintains. "The soaps used caused minor toxicity and grape burns were evident. In 1989, we definitely had some delay of ripening, particularly with Zinfandel, due to the mite problem and the leaves shutting down."

In 1990, Preston experienced low mite and other disease pressures largely due to May rains and low crop levels. In 1991, the number of blocks with mite problems was reduced although those blocks had heavy mite pressure. "It appears that we're making some organic viticultural impact," Clendenen concludes. "However, some blocks are not organic viticulture sustainable, but we have stopped all use of conventional insecticides."

Preston has applied for and received organic certification for 38 acres of Chenin Blanc, Sauvignon Blanc, Marsanne, and Muscat. ■

OMESS SPADONI D.E. FILTERS

Advanced technology at an affordable cost!!


Automatic Centrifugal dry cake discharge
Stainless steel dosing pump and motor
Horizontal Screens
Unit completely made in stainless steel
Large bottom opening

CRIVELLER COMPANY

In U.S.A.: P.O. Box 162, Lewiston, N.Y. FAX: (416) 374-2930
In Canada: 6935 Oakwood Drive, Niagara Falls Ph. (416) 357-2930/358-5202

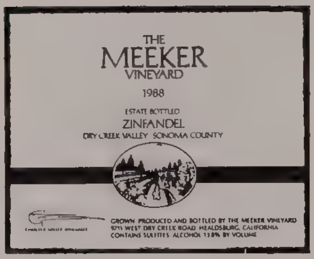
COMPLETE ENOLOGICAL SERVICES

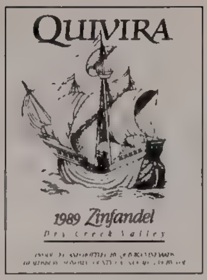
- ▲ consulting & problem solving
- ▲ quality control analysis
- ▲ BATF certified analysis for state, federal & export compliance
- ▲ laboratory planning & design
- ▲ lab supplies, equipment, reagents
- ▲ yeast strains & malolactic inoculants

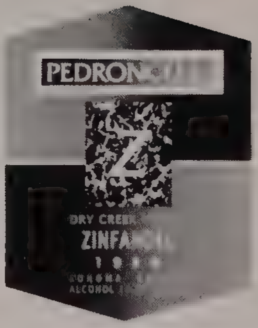
CALL OR WRITE FOR OUR CATALOG

707/433-8869
FAX 707/433-2927

VINQUIRY
16003 Healdsburg Avenue, Healdsburg, CA 95448
Winemakers Service and Research Laboratory







Valley of Zin

By Eleanor & Ray Heald

"Zin is in," comments Dry Creek Vineyard's owner Dave Stare. "It's also zensual, zexy, and zeductive."

Is it the aim of Zinfandel producers to change the English language to a gaggle of 'z' words? Perhaps—if it focuses attention on Zinfandel, especially that produced in the Dry Creek Valley (DCV) of Sonoma County in northern California.

DCV has a moderately warm climate with cool nights offsetting the hot days of July and August. Old vineyards planted 50 to 100 years ago in soils of low to moderate fertility along the valley's bench and hillside slopes yield grapes for high-quality Zinfandel production.

Many of DCV's old vineyards have a scattering of other varietals. Petite Sirah is the most abundant, but Carignane, Burger, and even Mission can be identified.

DCV Zinfandels span the complete berry spectrum in aromas and flavors. Blueberry, blackberry, raspberry, strawberry, and olallieberry have been used as descriptors. "It is a unique American wine which cannot be duplicated anywhere in the world," Nalle Winery owner/winemaker Doug Nalle maintains.

"Zinfandel is to Dry Creek as Chianti is to Tuscany," owner Lou Preston of Preston Vineyards contends.

In 1987, beause Preston was not alone in this belief, he was joined by seven other DCV Zinfandel producers (Dry Creek Vineyard, Lytton Springs Winery, The Meeker Vineyard, Nalle Winery, J. Pedroncelli Winery, Quivira Vineyards, and A. Rafanelli Winery) in the organization known as the Zintners of Dry Creek Valley.

The Zintners aim is clearly stated: "To promote DCV Zinfandel through the collective efforts of local bonded DCV wineries, all of whom have established commercial recognition for DCV Zinfandel. Together, we will produce a wine representative of the finest Zin from the area, thereby enhancing the superior image of DCV Zinfandel."

There are basic ground rules for participation. The bonded winery must be located within the Dry Creek Valley American Viticultural Area (AVA). The winery must have a red DCV Zinfandel in national distribution on a routine basis. All Zinfandel grapes utilized must be from vineyards located in DCV. Each winery must have an established quality reputation for red Zinfandel.

Each winery contributes 15 to 20 gallons of its finest DCV Zinfandel to the annual production of a bottling labeled The Ultimate Zinfandel. Total annual production of this wine does not exceed two barrels. Each member winery has a turn caring for a blend from a particular vintage.

One barrel of each year's production is offered for the annual Sonoma County Wineries Association Showcase and Auction and captures a zinofile's high bid. Each member winery receives one case of The Ultimate Zinfandel from each vintage. The production balance is held in a library collection for promotion and charitable use.

Although predominantly Zinfandel, The Ultimate Zinfandel frequently includes small amounts of Petite Sirah and Carignane from the mixed vineyard blocks so typical of DCV plantings dating to the early 1900s.

The Zintners are aware of their DCV Zinfandel heritage. They are even more keenly aware of the increased marketing need to associate the proliferation of California wine country place names with a particular grape variety.

(*Tasting notes included in the following text are for the 1988 Zintners DCV Zinfandels.*)

Dry Creek Vineyard

Larry Levin, Winemaker

Style

Achieving classic raspberry characters as intense as the grapes will allow is the primary stylistic goal at Dry Creek. To obtain stronger structure, the Zinfandel wine from two vineyards with old vines is blended with 10% to 25% Petite Sirah.

The expected ageing potential is three to five years minimum.

Vineyards

Approximately 80-year-old vines on St. George rootstock are planted on hillsides that are dry-farmed, spaced 8x8, and head-pruned at nine to ten two-bud spurs. The average crop level is two tons/acre.

Vines are suckered, but uneven ripening continues as a viticultural dilemma. Some thrip is also experienced. Leaf thinning is done after set only on the occassionally vigorous vines.

Brix levels (23° to 24°) and pH (about 3.2) are the principal harvest parameters. At these levels, TA is in the range of 0.85 to 1.1.

Winemaking

Inoculation with active dry Champagne yeast at one-lb/1,000-gal occurs immediately after crush. DAP and yeast nutrient are added at one-lb/1,000-gal each.

During fermentation in closed top fermenters, maximum juice temperatures are 85°F to 90°F. The wine is pressed (without separating press wine) within six to eight days of dryness and about 15 days total skin contact.

Acidulation, though rare and based on taste, is done post malolactic fermentation and the first SO_2 addition of 35ppm is made.

The wine is racked two or three times before it is barreled for 12 months. American oak barrels ranging in age from one to five-years-old are used. The wine is racked two to three times and blended with 10% to 25% Petite Sirah after barrel ageing.

To ensure microbiological stability, the wine is plated for Brettanomyces and given only a polish filtration before bottling 21 months after harvest.

At bottling, SO_2 levels are 35ppm free and 90ppm total. The TA measures 0.55 to 0.65, with a pH of 3.3 to 3.45.

Tasting Notes:

Color/Aroma: Dark ruby. Wood notes; herbal and spicy; ripe raspberry and strawberry; slighly peppery; opens with airing.

Flavors: Big impression of cooperage; raspberry; round middle; mouth fuller than nose suggests; pepper and eucalyptus.

Balance/Finish: A wine for extended ageing; tannic; medium body and finish; good acid balance; lean and attractive; complex wine that comes together in a splendid manner.

Lytton Springs Winery

Darrell Holbrook, Winemaker

Style

Deep color, intense and berry/peppery fruit without heavy tannins is the primary goal. A big style Zinfandel made from slightly overripe fruit that's drinkable early on and pleasurable drinking for three to six years from vintage is an additional aim.

Vineyards

Head-pruned and dry-farmed vines with an average age of 85 years are planted 8x8, 8x10, and 10x10. A 4% to 5% scattering of Petite Sirah exists in the vineyards. Suckering is done in May and June.

For the Lytton Springs style of Zinfandel, hot summers with a hot spell during harvest produce the best fruit in the range of 23.5 to 24.5 Brix, 0.64 to 0.74 TA, and 3.4 to 3.5 pH.

Winemaking

SO_2 at 40ppm to 50ppm is added at the crusher. After 24 hours of skin contact, the must (with 10% to 15% whole berries) is inoculated with active dry Red Star Champagne yeast at two-lb/1,000-gal.

During fermentation in closed-top tanks, maximum cap temperature reaches 95°F while maximum juice temperature is in the range of 85°F to 90°F.

The wine is pumped over twice daily for approximately 30 minutes and remains in contact with the skins for 10 to 14 days and is pressed at 12% to 14% alcohol.

Within four to six months after fermentation, wine that received two or three rackings is transferred to American oak barrels, averaging three- to five-years-old, for a period of 12 to 18 months.

Zinfandel lots, sourced from six to eight vineyards, are blended just prior to bottling. Three to six months before release, the wine is bottled unfined and unfiltered with SO_2 levels at 30ppm free and 50ppm total. The TA is 0.72, and pH is 3.5.

Tasting Notes:

Color/Aroma: Dark ruby. Ripe fruit and spice; ripe plum, slight raisin; slightly volatile; smoky oak; slight ethyl acetate; jammy.

Flavors: Full tannins; a big wine with adequate blackberry fruit; grapy, peppery; strong Petite Sirah aroma; raspberry; forward fruit; chalky tannins; rough wine with abundant flavor.

Balance/Finish: Plummy; slightly harsh and tannic; medium body and length; good acid balance; high extract, slightly hot.

The Meeker Vineyard

Michael Loykasek, Winemaker

Style

The stylistic goals at Meeker are straightforward — production of a Zinfandel wine that is very drinkable young, but also one that will age well for ten years.

Vineyards

Zinfandel occupys 50 acres of steep hillsides and ridges on the north-western edge of DCV. There is an elevation gain of 480 feet within the vineyard.

Zinfandel is produced exclusively from drip-irrigated estate vines that are 12-years-old, spaced 7x12 on St. George rootstock. Some are head-trained while others are on a bilateral cordon with two catch wires. At pruning, two bud spurs are left. Yield averages 1.5 to 2.0 tons/acre.

The soil profile is two to five feet of sandy loam topsoil. Subsoil is decomposing rock with sand and clay.

Normally, the typical irrigation program is 12-hour sets given every two weeks, if needed, from April 1 until early July. Vines are sprayed with Rally every two to three weeks from six-inch shoot growth until veraison.

Typically, fertilizing is done with nitrogen two to three times annually — prior to bloom, sometime in the post-bloom period, and again following harvest.

Grapes are harvested principally on Brix levels at 24° with a 3.35 pH, and a TA of 0.80.

Winemaking

Immediately following crush, must is inoculated with active dry Montrachet yeast at one-lb/1,000-gal. Maximum cap temperature in open-top fermenters reaches 90°F with maximum juice temperature at 85°F.

The cap is punched down manually three to four times daily and the wine is pressed within five to seven days after dryness and a total of 12 days skin contact.

A basket press is employed. Free run is pumped directly to the tank as is the first press. A second press lot is kept separate and not added.

The first SO_2 addition to 0.8 molecular is made post malolactic fermentation. After the gross lees are settled, the wine goes to two to seven-year-old French oak barrels for 18 to 24 months. Racking is done quarterly with aeration employed at the first racking only.

As needed, fining is done with three to five egg whites/barrel and racked off in two weeks.

The wine is bottled in July of the second year following harvest and released within six months.

Tasting Notes:

Color/Aroma: Dark ruby. Highly perfumed; ripe blackberry; raspberry; some diacetyl; lush fruit.

Flavors: Intense ripe berries; explosively fruity; Bing cherries; lean entry; firm, but not hard tannins.

Balance/Finish: Generous tannin that's slightly chalky; well balanced with ripe fruit; complex; slightly hot; forward acidity; well rounded.

NALLE WINERY

DOUG NALLE, WINEMAKER

Style

While it is the intention to produce a balanced, supple red wine that is primarily Zinfandel in character, Doug Nalle is continually intrigued by Zinfandel's palette of flavors.

He describes it as Beaujolais-like in youth with Pinot Noir-like qualities in both fruit and texture. Its spiciness often mirrors Rhone varietals and when fully mature, can be likened to a fine Cabernet Sauvignon.

Zinfandel constitutes nearly the entire production at Nalle Winery. Petite Sirah is included in the blend for its color contribution, middle body, and tannin.

Vineyards

All grapes for the production of Nalle Zinfandel are purchased. Older vines between 30 and 100-years-old are chosen. They are head-trained and spur-pruned.

These older vines frequently show the imperfections of age and have evidence of disease, but not so severely that ripening is hampered. In Nalle's opinion, such deficiencies help to control the crop and add interesting fruit intensity and complexities.

To deal with the major problem of uneven ripening, Nalle relies on many years of taste and vineyard experience together with historical test results to pick at optimum maturity levels.

Typical harvest parameters are: 22.5° to 24° Brix, 0.6 to 0.9 TA, and 3.2 to 3.5 pH. Underripe and overripe clusters are removed on a sorting table in-line to the crusher.

Winemaking

Some wild yeast fermentations are done in addition to use of cultured yeasts on some lots. Fermentation is done in open

Rapid, Economical, And Precise Automated Wine Analysis

ETS LABORATORIES

ETS Laboratories provide a complete spectrum of analytical services to the wine, distilled spirits, and brewing industries. We are committed to assist our clients with a level of expertise, reliability, technical capability, and objectivity unmatched among independent laboratories serving the alcoholic beverage industries.

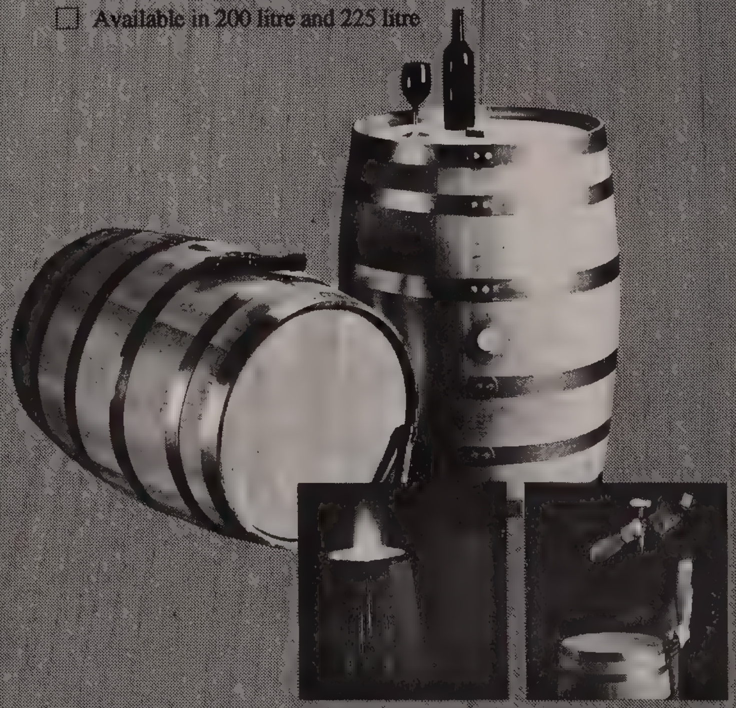
ETS Laboratories
1204 Church Street
St. Helena, CA 94574

Tel 707-963-4806 Telex 6502699293MCI Fax 707-963-1054

Independent Stave Company

Established 1913. Now America's largest family owned cooperage.

☐ Seasoned French & American Oak
☐ Selection of grains and toast levels
☐ Shaped and toasted over an Oak woodfire
☐ Available in 200 litre and 225 litre



Independent Stave Company

NAPA Valley
4391 Broadwaydrive
American Canyon, CA 94589
Phone 707-644-2530

PO Box 104
1078 S. Jefferson
Lebanon, MO 65536
Phone 417-588-4151

top tanks where the maximum cap temperature reaches 95°F and the maximum juice temperature is 90°F. Pumpovers are done several times daily to comingle juice and cap components without aggressive aggitation of the fruit.

When malolactic fermentation is completed, the wine is given its first racking. Ageing is done in 60-gal, new to five-year-old French oak cooperage for about 11 months. Petite Sirah is blended at 5% to 15%.

The wine receives an egg white fining and is bottled 11 months after harvest. It is released seven or eight months later.

Tasting notes:

Color/Aroma: Medium ruby. More spice than fruit; blackberry, raspberry; forward and grapy; ripe berry; some chocolate.

Flavors: Light fruit flavors; raspberry; fruity flavors consistent with aroma; soft and round.

Balance/Finish: Good play between alcohol, fruit, and tannin; medium fruit, medium body; good acid balance; all elements well balanced through the finish; lighter in style; representative of how versatile Zinfandel can be in a broad range of styles.

J. PEDRONCELLI WINERY

JOHN PEDRONCELLI, WINEMAKER

Style

DCV Zinfandels have a distinct varietal character, full body, and lingering flavors. To capture these elements in the bottle is the goal at Pedroncelli Winery.

The Pedroncelli brothers (Jim and John) learned the art of producing Zinfandel from their father, a native of Lombardy, Italy, who bought the winery in 1927. It is this traditional style that sets the standard of their winemaking today.

Vineyards

The Pedroncellis own 110 vineyard acres comprising both bench and hillside plots in northern DCV. Twelve-year-old Zinfandel vines are grafted onto St. George rootstock utilizing budwood taken from old vines in the home vineyards.

They are spaced 7x10 and 8x12. Some vines are dry-farmed, but the majority have overhead sprinklers. One sprinkling of three to four inches is made in July.

Most vines are head-pruned to six to ten two-bud spurs, but there are a few with a T-top, single wire cordon. Vines are suckered only and yield two to four tons/acre.

One sulfur dusting is made pre-bloom and another post-bloom. Nitrogen is applied biannually at 15-lb to 20-lb/acre.

Picking decisions are based on Brix levels between 22.5° and 23.5°, around 0.75 TA, and approximately 3.3 pH. Color maturity and berry size also play a major part in harvesting decisions.

Winemaking

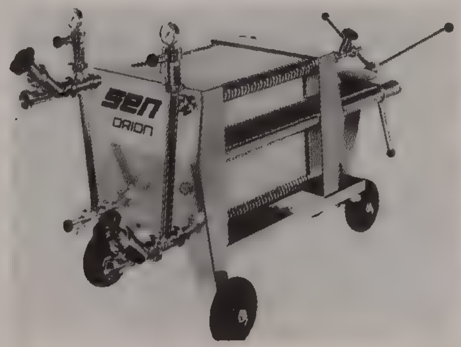
At the top of the crusher, 30ppm of SO_2 is added. If necessary, acid adjustments to a TA of 0.75 are also made.

Eight hours after crushing, active dry Pasteur Champagne yeast is added at one-lb/1,000-gal. The maximum cap temperature in closed-top fermenters is 85°F with the same maximum juice temperature.

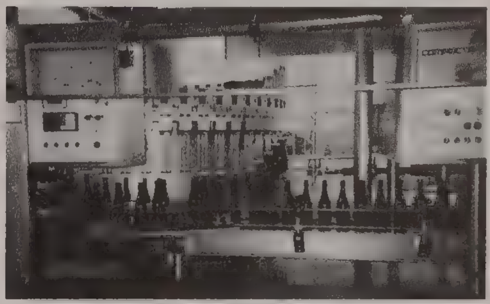
The entire cap is sprinkled three times daily with ⅓ of the total volume each time. Fermentation completes in five to seven days and the wine is pressed immediately. Later, a portion of the press

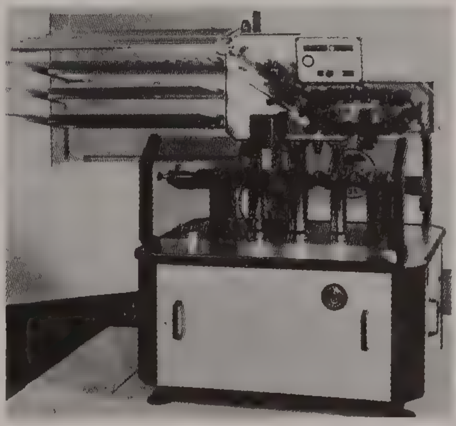
BOTTLING
FILTRATION &
PROCESSING
EQUIPMENT

KHS



SEN ORION FILTER


SEN FILLERS


BEER

ARMBRUSTER

- SEN Bottling & Packaging Equipment
- SEN Filtration Equipment
- OMESS Pressure Leaf D.E. Filters
- ARMBRUSTER Stemmer/crushers & mash pumps
- A/G Technology N_2 Generators
- BEER - Capsule Dispensers & Heat Tunnels

KHS **KHS MACHINES, INC.**

1350 INDUSTRIAL AVE., SUITE G, PETALUMA CA 94952
TELEPHONE: 707/763-4844 TELEX: 288978 TELEFAX: 707/763-6997
SUBSIDARY OF SEN AG • BAD KREUZNACH, GERMANY
East Coast Representative
JUERGEN LOENHOLDT - R.D. 1, ROUTE 14, Himrod, NY 14842 (607) 243-7568

wine is added back to the free run wine.

After the third racking in January or February following harvest, the wine is transferred to new to seven-year-old American oak barrels for ten to 14 months. In barrel, SO$_2$ levels are maintained at 25ppm free and 50ppm to 75ppm total.

If needed, four to six ounces/1,000-gal of gelatin are used as a fining agent after racking out of barrels. Racking off the fining agent settling is done two weeks later.

The wine is bottled 18 months after harvest with SO$_2$ levels at 25ppm free and 60ppm to 80ppm total. The TA is 0.65, with a pH of 3.4.

The wine is released to market after six months of bottle age with an expected ageing potential of ten years.

Tasting notes:

Color/Aroma: Medium ruby. Berry, cherry, plums; some blackpepper and blackberry.

Flavors: Subtle fruit; less ripe impression; medium richness; nicely spiced.

Balance/Finish: Elegant to the point of being slightly thin; good acid; plenty of character, but not a blockbuster.

PRESTON VINEYARDS

KEVIN HAMEL, WINEMAKER

Style

Zinfandel should reflect both the varietal and the vineyard source, especially the character of DCV. This means a medium weight wine with blackberry and raspberry fruit highlights and notes of pepper, cinnamon, and clove. The acidity should be firm, but tannins moderate.

The wine is drinkable upon release at two-years-old, but should age well for ten years.

Vineyards

Vines spanning an age range between eight and 100 years are planted at the northern end of DCV on slopes and upper terraces above the valley floor.

They are planted at various spacings of 8x8, 7x7, and 8x10 in soils with gravelly-clay topsoil from two to five feet deep underlain by fractured shale.

All vines are on St. George rootstock, head-trained, and pruned to five to seven two-bud spurs. Three older clonal selections on the ranch have been propagated to younger blocks. One in particular (a small berry selection with moderate vigor) has the most desirable qualities and has been further planted in younger blocks.

The canopy is allowed to radially array about the vine. Suckering is done in the pre-bloom period. In June, on heavier more shaded vines, leaves are pulled around the fruit to allow air movement and dappled light on the fruit.

All blocks older than 20 years are dry-farmed. Younger blocks are drip-irrigated and monitored with gypsum blocks. Preston's original philosophy was to stress the vines in the post-bloom period to ensure small berry size. When shoot tip growth ceased, limited drip irrigation was applied up to the time of harvest to avoid excessive raisining and leaf loss.

Under this regime, mites became problematic in the dryest areas. Since 1989, Preston has been farming Zinfandel largely organically and has eliminated conventional miticides. In combination with insecticidal soap and predatory mite release, the amount of irrigation has been slightly increased until very close to harvest to reduce the number of excessively dry spots.

Average crop levels are approximately three to 3.5 tons/acre.

Vines are sulfur-dusted at 10 to 15-lb/acre every 14 days from six-inch shoot growth to veraison. Predatory mites are released four times during the season beginning at rates from 750 to 3,000 mites/acre depending on pest mite levels. Spot treatments are given with Safer's Insecticidal Soap in mite 'hot spots.'

Annual petiole analysis is made in blocks showing deficiency symptoms. Where necessary, application of gypsum is made. Phosphorus and potash are dug into the vine base as needed. Green manure cover crops and compost are applied where nitrogen is low.

Flavor analysis is the principal harvest parameter. If acids begin to fall below 0.8, picking begins. Usually, Brix levels are in the range of 23° to 24°, and pH is 3.3 to 3.4.

Winemaking

The first SO$_2$ addition of 30ppm is added with the first pumpover in the fermenter. After a 24-hour soak period, the must is inoculated with active dry Pasteur Champagne and UCD 595 yeast at a level of one-lb/1,000 gal. Fermentation proceeds in both open-top stainless and redwood fermenters where maximum cap temperature reaches 95°F and maximum juice temperature is slightly less at 93°F.

For 75% of the tanks, pumpover is done three times daily for 20 minutes. The re-

mancuso
a wine broker

Karen Mancuso

"Dependable, objective information & guidance concerning your buying & selling decisions"

◇ ◇ ◇ ◇ ◇

Specializing in Premium Wines Since 1985

- ◇ *Buying or Selling in Bulk: wine, juice, brandy, high-proof and concentrates*
- ◇ *Processing Contracts*
- ◇ *Private Label Wines*
- ◇ *Grape Contracts*
- ◇ *Inventory Evaluation*
- ◇ *Market Analysis*

3129 Fillmore Street, Ste. C
San Francisco, CA 94123

Tel: 415•474•8200
Fax: 415•474•0849

maining fermenters have a submerged cap. Juice is circulated over the cap twice daily for one hour. This latter method is used on lots where color is deemed deficient.

The wine is pressed at dryness after an eight to 14-day skin contact. Hamel contends that it is possible to over-macerate certain lots of fruit resulting in complete skin breakdown. Achieving good color levels in Zinfandal begins in the vineyard. Color stability can be a problem and that's why Petite Sirah is blended in!

Barrel ageing begins as soon as possible after pressing. When malolactic fermentation completes, SO_2 is added and the SO_2 level is maintained at 20ppm free throughout the 14 to 16 months of barrel ageing.

Two to eight-year-old 60-gal Center of France cooperage is used. The first barrel racking is done with aeration, the remaining four rackings are not.

Blending is done in the spring following harvest. Petite Sirah, contributing color, tannin, and ageing potential is blended at 5% to 12%. Occasionally, Carignane (for berry flavor, and broad mid-palate) and Barbera (offering cherry/raspberry fruitiness, roundness, and balanced acidity) are blended at around 5% to 10%.

During the wine's second spring, it is bottled at free SO_2 levels of 28ppm to 32ppm, and 60ppm to 90ppm total. TA is 0.6 to 0.7, with a pH of 3.35 to 3.5.

The wine is bottle-aged for six to 12 months before release. It has an expected ageing potential of six to ten years.

Tasting notes

Color/Aroma: Light ruby. Jammy fruit with chocolate notes; raspberry and aromatic oak.

Flavors: Ripe strawberry overlaid with oak; slightly one dimensional with some whole cluster carbonic flavor.

Balance/Finish: Soft, low tannin; slightly high alcohol for the fruit; a current drinking wine; medium body and finish; uncluttered and very drinkable now.

Quivira Vineyards

Grady Wann, Winemaker

Style

The principal stylistic aim is to produce a complex, balanced wine that reflects the fruit characteristics of the estate hillside Zinfandel fruit.

The wines are well-colored, rich, have finesse, and are elegant with a balanced finish. Quivira strives to achieve a Zinfandel with backbone, but also softness to ensure both near and long-term drinkability.

Vineyards

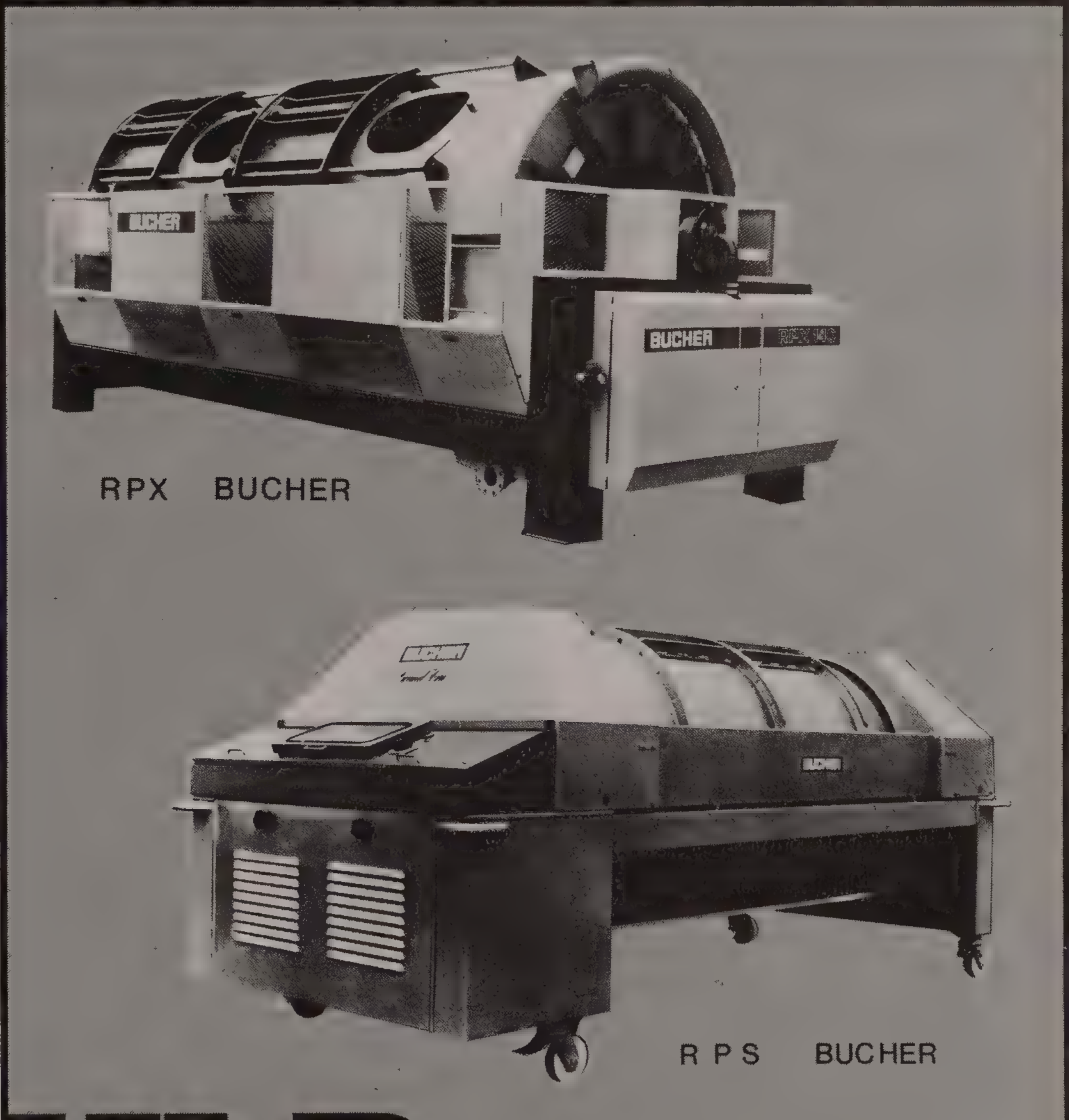
Quivira's Zinfandel originates from an estate block planted in 1963, supplemented by neighboring Zinfandel vineyards, and a small amount of 30-year-old estate-grown Petite Sirah. All vines are the Dry Creek clonal selection, spaced 8x8 on St. George rootstock. They are head-trained and pruned to five to eight spurs/vine.

Vines are suckered and leaves are pulled in the fruiting zone on denser vines. Average yield is 1.25 to two tons/acre.

Vines are sulfur-dusted at three-week intervals from six-inch shoots through June. Potassium deficiencies have been noted and are corrected when required.

Berry flavor is the major picking criterion, but generally, flavor maturity occurs around 23° Brix, 0.65 TA, and 3.5 pH.

BUCHER



KLR Presses

KLR MACHINES, INC.

350 Morris Street, Suite E
Sebastopol, CA 95472
Telephone: (707) 823-2883
Telefax: (707) 823-6954

47 West Steuben Street
Bath, NY 14810
Telephone: (607) 776-4193
Telefax: (607) 776-9044

Winemaking

Some whole berries are fermented to add overall fruitiness to the blend. Within 24 hours after crush, inoculation at 1.5-lb/1,000-gal of active dry Champagne 595 yeast is made. Occasionally, DAP is added as a yeast nutrient.

During fermentation in open-top fermenters, maximum cap temperature reaches 88°F while maximum juice temperature is 85°F. The cap is given a gentle sprinkler irrigation twice daily for ten to 20 minutes.

Pressing occurs just before dryness after seven to nine days skin contact. Gentle press wine is added back to the free run wine.

The first SO_2 addition of 50ppm is made after malolactic fermentation completes and the wine is transferred to 60-gal new to three-year-old French oak of varying origins for 10.5 months. During the barrel regime, the wine is racked with aeration every three months. The free SO_2 level is maintained at 0.5 molecular.

About 10% to 15% Petite Sirah is blended to enhance color, tannin balance, and fruit complexity.

The wine is bottled in August prior to the next vintage with SO_2 levels at 25ppm to 30ppm free, and approximately 90ppm total. The TA is 0.6 to 0.7, with a pH of 3.4 to 3.5. The wine is bottle-aged for eight months prior to release. The expected ageing potential is five to eight years.

Tasting notes:

Color/Aroma: Medium ruby. Ripe fruit with spicy, oaky notes; intense raspberry; blackpepper; vanilla; cream soda; cherry/berry; berry and plums; flowery with hints of cinnamon.

Flavors: Blackberry, raspberry, blueberry, subtle oak; cranberries; exceptional fruit harmony.

Balance/Finish: Perceptible, but not obtrusive tannins; complex; rich body and medium to long finish; round and structured; well balanced.

A. RAFANELLI WINERY

DAVE RAFANELLI, WINEMAKER

Style

A deeply concentrated Zinfandel with soft tannins is produced from 50-year-old, head-pruned vines. It is approachable at two years, yet will age gracefully for another eight to ten years.

The winery philosophy is that wines are first made in the vineyards, and then through traditional red winemaking practices, are allowed to express the vineyard signature which is rich and full with hints of raspberry and pepper. The wine is always bottled unfiltered with full tannins, vanilla accents, and spicy flavors.

Vineyards

The Rafanelli family has made wine in DCV for three generations. Fifty acres of estate vineyards have Zinfandel as the mainstay. Old DCV clonal selections are planted on St. George rootstock.

Depending on structure and vigor, dry-farmed vines, spaced 6x10 are pruned to anywhere from four to nine two-bud spurs. No canopy manipulation techniques are employed. Suckering is done in May.

Potassium soil deficiencies are corrected as required.

Picking decisions are based solely on berry flavor.

There's something about us you should know.

Richard de los Reyes, John Ciatti, Joseph Ciatti, Jim Carter

The Joseph W. Ciatti Company is the wine industry's largest, oldest, and most comprehensive wine brokerage.

Allow our expert staff
to assist you in:

◆

Negotiating custom grape-crushing contracts.

◆

Procuring premium varietals, aged wines, large and small lots.

◆

Tasting, blending and finishing by on-staff enologists.

◆

Current market analyses, assessment of inventories, quality evaluation and market value.

◆

42 Miller Avenue
Mill Valley, California 94941

◆

Ph: 415.388.8301
Fax: 415.388.0528

WINE BROKERS
JOSEPH W. CIATTI CO., INC.

Winemaking

Standard red winemaking techniques are practiced. Active dry Champagne 595 yeast is used. Depending on variables, pressing may occur after a minimum of five days skin contact or a maximum of 15.

The wine goes to American and French oak barrels ranging from new to four-years-old within three months of pressing and remains there until March following harvest when it is bottled with 20ppm free SO_2.

Tasting notes:

Color/Aroma: Very dark red. Very ripe blackberry; raisins, plums; strong Petite Sirah character; blackpepper; concentrated; late harvest type; cedary; oaky intensity.

Flavors: Intense blackberry; some stemmy, herbal character; rich and plummy; fully extracted; lush; ripe and sweet with smoky notes.

Balance/Finish: Tannic middle is well-balanced to alcohol and fruit; slightly ripe; soft tannins in finish; big wine; rustic style.

***PWV** thanks Quivira Vineyards for hosting the tasting of Zintners 1988 and 1989 DCV Zinfandels and the following winemakers for participating: Larry Levin, Dry Creek Vineyards; Dick Sherwin, Lytton Springs; Mike Loykasek, The Meeker Vineyard; Doug Nalle, Nalle Winery; John Pedroncelli, Pedroncelli Winery; Lou Preston and Kevin Hamel, Preston Vineyards; Grady Wann, Quivira Vineyards; and Dave Rafanelli, A. Rafanelli Winery.* ■

ALERT from The Wine Lawyer:

Two recent U.S. Supreme Court cases may prove highly significant for the wine industry.

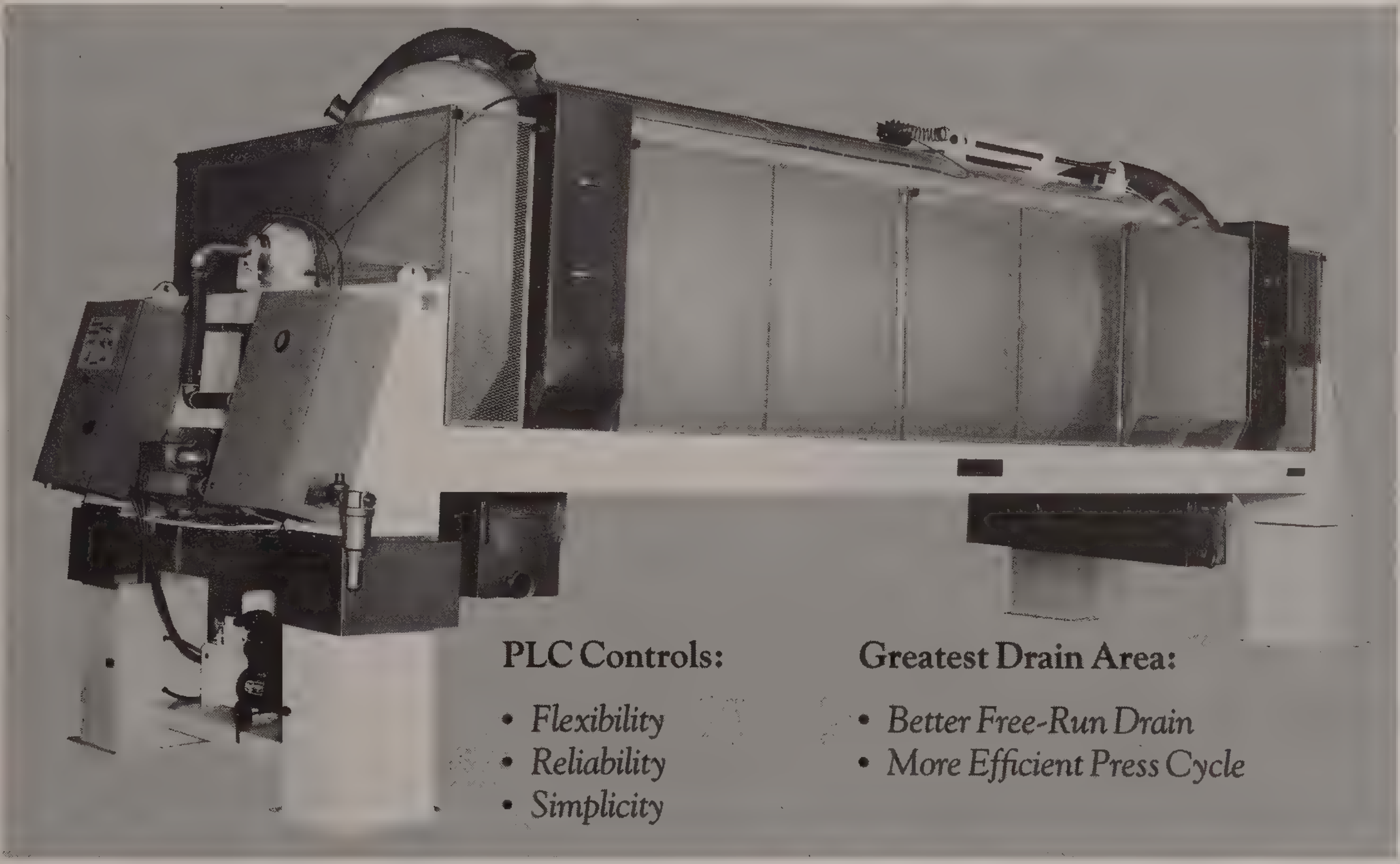
One, which actually involved title insurance, suggests that compliance with state price-posting laws can constitute a violation of federal antitrust law.

The other, a tobacco liability case, confirms that use of the Government Warning does not insulate wineries from liability based on their advertising and promotion and leaves open the possibility that wineries might be liable for failing to put more on the bottle label than the Government Warning requires.

Details in the Sept/Oct'92 PWV 'Wine Lawyer'.

DIEMME

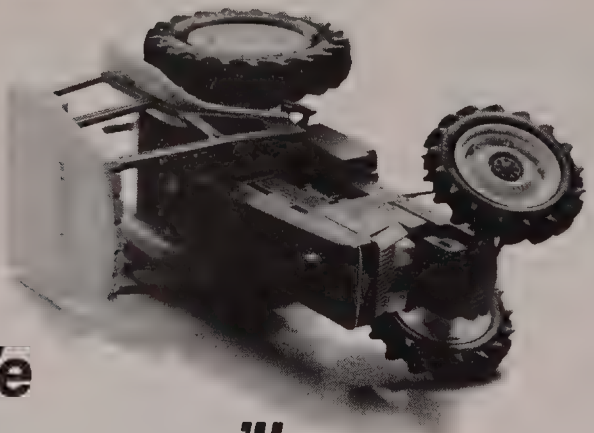
The Intelligent Choice



PLC Controls:
- Flexibility
- Reliability
- Simplicity

Greatest Drain Area:
- Better Free-Run Drain
- More Efficient Press Cycle

Exclusively represented by: fp Packaging, Inc. P.O. Box 881, So. San Francisco, CA 94083 Tel. 415.742.5400



We hope you'll never need our claims service. But if you do, you'll be glad we're here.

In spite of our best intentions, accidents do happen. When they happen to your employees you need a workers' comp insurer you can depend on for efficient claims service.

State Fund has 21 full-service offices throughout California. As a result, your claim is handled locally by people who know and work closely with your medical community. To further assist you, State Fund has developed a medical cost containment program which, since 1985, has saved policyholders $133 million.

Contact your county Farm Bureau office or the State Fund office nearest you to learn how you can join the Farm Bureau/State Fund Group Insurance Program. Or call 1-800-533-6868.

STATE
COMPENSATION
INSURANCE
FUND

CALIFORNIA
FARM
BUREAU
FEDERATION

Zinfully delicious

By Eleanor & Ray Heald

"Zinfandel has a broad stylistic spectrum, even in Dry Creek Valley," comments Todd Muir, chef at the Madrona Manor in Dry Creek Valley (Healdsburg, CA). Muir, a graduate of the California Culinary Academy, has been the chef at his family's restaurant for ten years.

During the ten years, Muir has enjoyed monitoring the evolution of Dry Creek Zinfandels. The Zinfandels range from young claret styles that are refined and offer a lighter palate impression to the Rafanelli style which is hearty and robust.

Muir believes that the dynamic range of Zinfandels requires specific food preparations matching the diversity of elements. To illustrate this, a basic grilled sausage theme has been employed, which is altered, depending on the stylistics of the wine.

A wine with forward fruit but light palate impression should be accented by a preparation with fruit, such as pork sausages with dried cherries. The pork is the background flavor and the cherries are in the forefront to explode the wine's fresh fruit flavor.

Flavors of a more robust Zinfandel can be carried off with a traditional Italian sausage with earthier, heartier garlic and fennel accents. However, hot pepper flakes in sausage create palate heat which works against the wine.

"Using chicken instead of pork in a sausage will naturally accent Zinfandel fruit," Muir contends. "Using lemon verbena in the preparation brings out the fruit in a different way. It doesn't match the fruit exactly, but rather highlights it.

"Lemon thyme showcases middle flavors. Garlic rounds out both the food and the wine impression. A fresh fig chutney accompaniment also works well."

There is a drawback to chicken sausages: they lack sufficient fat to keep them from drying out. They must be grilled quickly and served immediately.

"Chicken sausages cannot be held in a holding pattern," Muir adds. "If this is a kitchen requirement, about 20% pork fat needs to be incorporated with the white meat chicken. It's still a lean sausage, suited to today's lighter cuisine, but with adequate fat to keep it from drying out."

Muir also has prepared a chicken sausage using a caul fat or veil fat casing which has fat on the outside, a good element for grilling and keeping the sausage meat moist.

To contrast textures, a cucumber and red onion salad is recommended as a perfect match to grilled sausages, fig chutney, and Zinfandel. "The crunch of the cucumber and red onions, together with the sweet chutney fruit and lemony sausage, harmonize with Zinfandel's fruitiness and draw attention to its complex flavor elements," Muir explains.

Accentuating fruit

Mesquite-grilled, marinated tuna with garlic and subtle fresh herbs (thyme, marjoram, oregano, and parsley) is a major complement to higher perceptible fruit levels in Zinfandel. The earthier, fuller flavor presented by the marinade and mesquite grilling, together with the texture of the fish, offset any perceived hotness if alcohol tends to be high in the wine.

Muir likes to use a Zinfandel butter to highlight fruity flavors and reduce alcohol's impressions. The wine is reduced to concentrate flavors and then is mixed with the butter to spread them back out again. This sauce is put on top of the tuna and cuts through both a Zin's youthful acidity and alcohol.

"Yes, you can say that Zinfandels go with fish," Muir states. "They are not easy to pair, but concentration on marinades, sauces, and grilling techniques offer an interesting harmony."

Muir works with sauces to accent a specific wine, using that wine in the reduction if it has been ordered by a restaurant patron.

Downplaying alcohol

"Lighter food preparations don't work with Zinfandels at 13.5% and higher alcohol," Muir maintains. "These wines have body and substance, and a light chicken sausage will be overwhelmed. Full-flavored meats such as venison, beef, and lamb are the easiest harmonies."

The loin is removed from the venison saddle and marinated with the more typical flavors associated with venison, such as juniper berries, because they are flavors that contrast with robust Zinfandels.

"Roquefort cheese spread on a beef filet with a glass of hearty, higher-alcohol Zinfandel works incredibly well together," Muir suggests. "The cheese is strong, yet the fat content marries well with the wine because it cuts through acidity and perceptible tannins."

For additional flavors, the filet can be marinated in olive oil, garlic, and pepper, and salted after it comes off the grill. A half-and-half mixture of sweet butter and Roquefort, with a little fresh, minced garlic and parsley for color, can be spread on the filet making a simple yet flavorful harmony.

Mustards

"Mustards have a vinegary taste even if they're made with wine," Muir claims. "You have to be very careful using them, but some people don't enjoy sausages unless mustard is served.

"I would not set out to pair Zinfandel with any mustard. It heightens the tannic impression and lowers fruit intensities. Mustard sauces work, because you're cooking the mustard. It's the same as cooking garlic — it's not hot anymore. Once the garlic is carmelized, it's sweet. Mustards fall into the category of sharply acidic foods and they don't pair with wine."

Muir prefers to play with the fruits and sweet fruit impressions in a wine. Any sweet perceptions balance out the tannins and he'd rather focus in that direction with food pairings.

In the same condiment convergence, Muir does not believe in playing to the pepperiness of some Zinfandels. The subtle, natural peppery character, frequently stemming from Petite Sirah, is an accent to food in itself. Heightening this focus with green peppercorn sauce, as an example, is redundant and removes enjoyment of the wine's abundant fruit components.

Environmental relations

Eggplant, tomatoes, and basil traditionally contribute to the enjoyment of red wine and this is especially true of Zinfandel. Married with lamb as the red meat of choice, they make simple yet elegant pairings.

"Many traditional pairings come from the animal's environment," Muir explains. "For example, mint and lamb. Frequently, you'll notice wild mint sharing the same pasture with lambs. Mint, lamb, and Zinfandel do work, but never mint jelly! Mint can be part of a chutney as a carrier for the flavor."

Cheese courses

Pairing Zinfandels with French goat cheese such as Montrachet or Boucheron is suggested. "A French goat cheese is not a Sonoma goat cheese," Muir maintains. "I support the farm efforts of Sonoma County, but when it comes to goat cheese, my palate lies with French.

"The French are not as strict with pasteurizing laws and this adds a taste element that is simply not there in domestic products. The butter — and therefore the cooking — in France is so much different. There's not anywhere near the water content in French dairy that there is in the domestic product. This is carried over to the cheeses."

Muir does match Zinfandel to a Sonoma goat mozzarella that's been lightly smoked in the restaurant smoker for 45 to 60 minutes. "That way I get a gentle smokiness that complements the oakier Zinfandels. It's not so smoky that you lose the goat impression because the center part of an 8-oz smoked round remains unpermeated."

Local, Sonoma Dry Jack (with the cocoa coating), sliced thin, is a superior cheese harmony for Zinfandel.

Personal preferences

"When I go out to eat at another restaurant, I prefer to order only appetizer portions," Muir says. "That way, I can do more wine pairing; I don't get as full, and it seems that frequently, restaurants are putting greater energy into their appetizers than the entrees.

"I get very bored after four or five samplings of the same flavors, so I don't enjoy an entire entree with the same wine." ■

Agent: Boswell Company
1000 Fourth Street, Suite 540 • San Rafael, CA 94901
415/457-3955 • Fax 415/457-0304

Western grapeleaf skeletonizer discovery in Napa County

By Ed Weber, Napa County Farm Advisor, University of California Cooperative Extension

Western grapeleaf skeletonizer (WGLS), *Harrisina brillians* Barnes & McDunnough, was recently detected in Napa County, CA. Previously absent from Napa County, this insect pest has now been found in significant numbers.

An eradication program is currently being conducted by the Napa County Agricultural Commissioner. If WGLS becomes established in Napa County, additional pest management practices will be required to minimize feeding damage to the vines. Further, there will be a greater likelihood that WGLS will spread to neighboring North Coast counties.

Description and life cycle

The western grapeleaf skeletonizer is a serious pest of grapevines in much of California. Adults are day-flying moths which are conspicuous due to their slow speed of flight and their distinctive metallic bluish-black color. Larvae feed on grape leaves and occasionally fruit, and can entirely defoliate vines. Workers coming in contact with larger larvae may develop skin welts due to the larvae's stinging hairs.

WGLS was first found in California in 1941 near San Diego. Since that time, it has spread northward and is now present in the San Joaquin Valley from Kern County to San Joaquin County, as well as some Central Coast grape-growing regions.

WGLS overwinter as pupae inside cocoons located under the bark or in litter below vines. In late spring, adult moths emerge from pupal cases in search of mates. Barrel-shaped eggs are laid on the underside of grape leaves. They are pale yellow or whitish in color and are neatly laid in tight masses of up to 300 eggs. Eggs hatch in about two weeks. Emerging larvae will molt four times as they feed and increase in size. The five stages of larval development are termed first through fifth instars.

Newly hatched first instar larvae are cream-colored and quite small, about 1/16-inch long. Most eggs in the egg mass hatch at the same time and the larvae feed together side-by-side. Their feeding strips the tissue from the underside of the leaf leaving only a fine webbing of the upper epidermis.

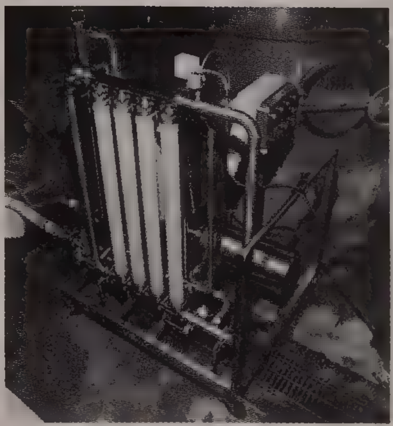
Second and third instar larvae continue to feed together in this manner. As fourth and fifth instars, they feed independently of one another. These later two instars are ½- to ⅝-inch long and they consume the entire leaf blade except for the main veins, leaving a 'skeleton' of the leaf. Third, fourth, and fifth instar larvae are brightly colored with blue and black bands contrasting their yellow bodies.

YOU MAKE WINE;
WE MAKE LABELS.

TOGETHER, WE MAKE A DIFFERENCE.

FINE QUALITY LITHOGRAPHIC PRINTING · SINCE 1949

BLAKE PRINTERY
PLEASE CALL FOR BROCHURE, 800/234-3320



STRASSBURGER FILTER

STRASSBURGER
MicroCross®
Filtration System

√ Complete Filtration in one pass
√ No Color Stripping
√ No Temperature Increase
√ Ease of Operation
√ Complete Automation Available

Napa, CA
800-527-0197

Egg Harbor, NJ
609-965-0074

RLS

Fifth instar larvae spin irregularly shaped, silken white cocoons in which to pupate.

A second generation begins when adult moths emerge from their pupal cases. In the North Coast, this occurs in July/August. These moths similarly mate and lay eggs in tight masses, and emerging larvae feed on grape leaves and develop through the five larval stages. Most pupae from the second generation go into diapause for overwintering.

Depending on the climate of the region, adult moths may emerge from some second generation pupae in the late summer or fall and begin a third generation of insects. This third generation is often incomplete due to a lack of available green foliage as food for the larvae.

Discovery in Napa

Due to the increasing number of grape shipments arriving from infested Central Valley counties, there was concern that WGLS could be inadvertently introduced to Napa County. The Napa County Agricultural Commissioner began a trapping program to monitor for WGLS in 1987.

Jackson insect traps baited with pheromone lures attractive to WGLS were located at several sites in Napa County. Traps were inspected every one to two weeks, and the pheromone lure replaced once each year. The lure is very effective and attracts male moths over a great distance.

Occasional catches of single adult moths were made in the first few years of trapping. All of these were presumed to be 'hitchhikers' arriving on vehicles from outside the county. Because the catches were infrequent and the moths few in number, little concern was raised.

In 1990, several moths were caught in a single trap located in the Carneros district of southern Napa County. Due to the number of insects caught, it was presumed that there was an established population of WGLS nearby. The number of traps in the area was increased to help locate the infested vineyard. Additional moths were caught in these traps but the infestation was not located prior to leaf fall.

Local growers were alerted to the problem and were asked to assist in locating any infested vineyards. Information sheets with color photographs of WGLS were provided to field workers, since they would likely be the first to find newly hatched larvae. With this grower involvement and an intensified trapping program, an infested vineyard was located in Carneros in the spring of 1991.

At the same time, additional infested vineyards were discovered near Rutherford in the middle of the Napa Valley, some 20 miles away. WGLS moths are poor flyers so these were certainly separate introductions and infestations. There is concern that even more vineyards may be infested.

All infested vineyards were treated with insecticides in 1991 in an attempt to eradicate WGLS from those locations.

The WGLS trapping program for 1992 includes approximately 250 traps distributed throughout Napa County. The goal is to locate and eradicate any infestations as soon as possible. If WGLS spreads to urban areas with backyard grapes, or to native and naturalized grapes along the Napa River or its tributaries, eradication will become impossible and WGLS will have established itself permanently in Napa County. Hopefully this can be prevented.

Our ongoing commitment to quality.

In order to provide the finest corks available, fp Portocork has established an unequaled Quality Assurance Program, a three step approach to *quality without compromise.*

INCOMING INSPECTION
On every incoming shipment samples are pulled based on government sampling plan MIL-STD-105-D. Each shipment is inspected and analyzed for the following characteristics:
- Quality Breakdown
- Sensory
- Residual Chlorine
- Residual Oxidants
- Moisture
- Dimensions

BATCH CODES
fp Portocork's unique batch code system provides traceability of vital information for each carton of corks.

FINAL INSPECTION
Every shipment is evaluated for the following:
- Quality Breakdown
- Moisture
- Dust Test
- Capillary Test
- Micro
- Sensory

fp Portocork, Inc.®
601 Airpark Road, Napa, CA 94558 (707) 258-3930

Regulatory measures

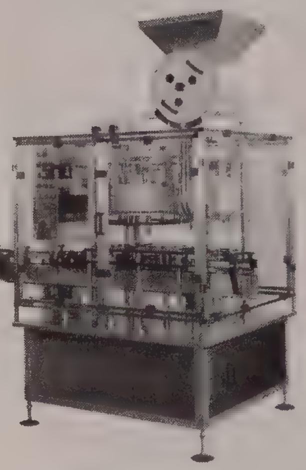
It is believed that most WGLS coming into Napa County are arriving with shipments of green-growing benchgrafts from nurseries in infested areas of the Central Valley. When adult moths are flying in the Central Valley, females moths will enter the nurseries and lay eggs masses on leaves of these young plants.

Most nurseries attempt to control WGLS, but some moths still make it through. Young plants carrying egg masses are subsequently shipped to growers throughout California for planting. Dormant plants are not at risk of carrying WGLS.

In an effort to reduce WGLS introductions, Agricultural Commissioners in Napa, Sonoma, and Mendocino counties have developed more stringent regulations for shipments of green-growing grapevines into those counties.

Under the new Napa County WGLS ordinance, no green-growing plants from within California shall be shipped to Napa County unless accompanied by a certificate which indicates that the plants have been treated with an appropriate insecticide, or, a certificate that indicates the plants were grown and held in areas where WGLS does not occur.

The latter certificate may only be issued when the Agricultural Commis-



SMB
TECHNIK GmbH

COMBISTAR
Filling and closing machine

▼ German Engineering
▼ 50 to 90 bmp
▼ Competetively priced

Gert Transier, SMB Technik GmbH, Mannheim, Germany - For U.S. representation, service and parts, please contact Bob Brakesman 2000 Summit Lake Drive, Angwin CA 94508. Tel. 707-965-2488 or please FAX your inquiries to 707-965-2281

Key Industrial Associates

SUPPLIES & EQUIPMENT FOR THE WINE INDUSTRY

- Tri-Clover Pumps, Valves & Fittings
- Specialty Fittings
- Definox Valves
- Strahman Valves
- Anderson Instruments
- Rubbermaid Products
- PVC & Tygon Hose
- MGT Rubber Hose
- Hose Fittings
- Brushes
- Barrel and Tank Washers

"Personalized Service"

997 Enterprise Way Napa, CA 94558 (707) 252-0312

VITROVINE™
GRAPE PLANT MATERIALS FROM AGRITOPE

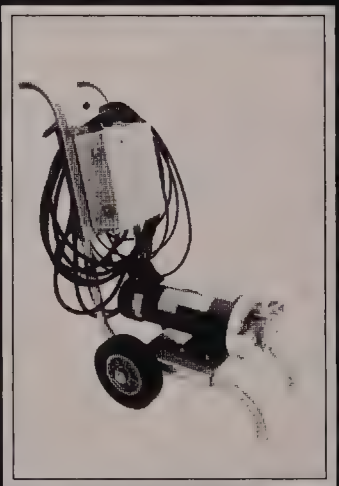
ROOTSTOCKS:
- True Riparia Gloire
- True S04
- 110R, 3309, 420A, 5BB
- Other phylloxera resistant varieties

SCIONS:
- Desirable European clones and traditional varieties
- Dijon clones: Pinot Noir, Chardonnay
- Available as green or dormant grafts, or as budwood
- Propagation of grower selections: ELITECLONE™

Providing technological and scientific leadership to the grape industry

8505 SW Creekside Place ▪ Beaverton, OR 97005
Phone: (503) 526-8903 ▪ Fax: (503) 643-2781

AGRITOPE



COMPLEAT WINEMAKER
"SINE QUA NON"

TRANSFER PUMPS
stainless steel
flexible impellers
positive displacement
signal isolator for intrinsicly safe controls
reversible • variable speed
cart mounted
25-125 GPM
MODELS 25 AND 50
transfer only
MODELS 80 AND 125
must and transfer

THE COMPLEAT WINEMAKER
955 Vintage Avenue • St. Helena, CA 94574
707-963-9681 • FAX 963-7739

sioner in the shipping county has determined that WGLS does not occur in these nursery areas, nor in all land within one mile of the perimeter of these locations. All shipments arriving in Napa County will be held until these certificates are reviewed and the plants are inspected by the Napa County Agricultural Commissioner. Additional insecticidal treatment may be required.

Insecticidal control of WGLS

Several insecticides are registered for use against WGLS. All are effective if properly applied with attention given to complete coverage of the vines. One of the available materials is cryolite (Kryocide®), sodium fluoaluminate. This is a naturally occurring mineral which has insecticidal properties. Manufactured forms are also available.

A single application of cryolite is usually effective for controlling WGLS and other lepidopterous pests of grapevines if the application is properly timed and sprayed onto the most highly infested part of the canopy. It has long been popular with growers in the Central Valley because of its long residual activity. Other materials may require multiple applications to achieve similar levels of control. In addition, cryolite is less damaging to beneficial insects and predators than some of the other available materials.

Early in the 1990 growing season, several large wineries informed growers that they would no longer accept fruit that had been treated with cryolite. The European wine advisory body, the Organization International de Vin (OIV), had recently reduced their tolerance for fluoride levels in wine to 1 part per million (ppm) from a previous standard of 3 ppm. Several California wines were found to exceed this 1 ppm level and could not be exported to Europe. Because cryolite contributes to the fluoride levels in wine, its use was suspended by these wineries.

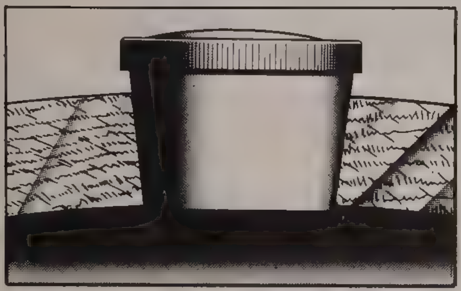
In 1991, after further review, the OIV reestablished the 3 ppm standard for fluoride in wines. As a result, cryolite should again be available for use by most growers during the 1992 growing season.

Biological control

In the 1950's, a parasitic wasp, *Apanteles harrisinae* (Muesebeck), and a parasitic fly, *Amatadoria misella* (Wulp), were introduced to California as biological control agents for WGLS. In some locations, these natural enemies can be effective in reducing the numbers of WGLS and in minimizing damage to vines. However, in most infested vineyards, insecticides are required for adequate control.

Efforts have been made to rear WGLS parasites for release into vineyards (see accompanying report at Callaway Vineyard & Winery). Additionally, there is a granulosis virus which attacks the larval stages of WGLS. This virus is highly effective and could be an important part of a biological control program, however its commerical use is prevented under current regulations.

If the current efforts to eradicate WGLS from Napa County are successful, and more stringent regulations prevent future introductions, the need for these WGLS control programs, whether chemical or biological, can be avoided. ■



The SB2™ Bung

The Best features of silicone in a very efficient form
- Low efficient profile.
- Tight seal.
- Moisture and chemical resistant.
- FDA approved.
- Will not affect flavor of sealed product.
- Will function for years without material degradation, cracking or warping.

For your nearest available dealer, contact:

Agtex CORPORATION
1617 S. California, Monrovia, CA 91016
(800) 669-0327 FAX (818) 303-6085

Your wines deserve the finest care . . . we can offer you the most efficient cleaning of your equipment . . .

- Have you spent the night scrubbing tartrates out of a vat?
- Put a steam hose inside — not yourself. Tartrates will melt away quickly.
- Steam kills bacteria on contact.
- Ideal for bottling lines.
- Helps keep tour area sanitary.

UL Electro Steam CSA

ASME - W/UL & CSA

Call or write for details.

ELECTRO-STEAM GENERATOR CORP.

1000 Bernard Street
Alexandria, Virginia 22314
(800) 634-8177
(703) 549-0664
Fax: (703) 836-2581

ATTENTION
Wine Industry Suppliers
Reach the international market with your equipment, products and services.

Bordeaux, France
November 24-27, 1992

The first international exhibition of Viti-Vinicultural equipment, material and techniques.

•

Pre-register now to secure your booth space.

•

For exhibitor and visitor information, please call International Trade Exhibits France
(213) 688-9297 (703) 351-5670

Using parasitism to control WGLS

In 1989, Callaway Vineyard & Winery, Temecula, CA, discovered the Western Grapeleaf Skeletonizer (WGLS) in its 800-acre vineyard and began to explore ways to control or eradicate this vineyard pest.

Currently, 200 acres of the vineyard are treated with cryolite to control WGLS, while 20 acres (two 10-acre blocks) are managed using WGLS parasites. Callaway is rearing two parasites for release into the vineyard to control WGLS: the parasitic wasp *Apanteles harrisinae* (Muesbeck), and the parasitic fly *Ametadoria misella* (Wulp). These parasites are reared on WGLS larvae collected from the vineyard.

Rearing WGLS parasites

The vineyard is monitored from May to October when WGLS moths and larvae are active. Early detection is crucial in keeping track of the developmental stages of the WGLS life cycle.

Usually, in the third week of May, pheromone lures on sticky boards are placed in the vineyard (23 traps/acre in two blocks of ten acres [454 vines/acre]). The sticky boards retain the moths once they fly into the traps. Traps are monitored daily and the sticky boards replaced when full (90 to 100 moths). Moth trap counts are recorded to prepare a developmental growth curve.

WINEMAKER'S ENCYCLOPEDIA

mu·co·l'y·tic e'n·zymes

ROHAPECT® VRF – Overcomes the "slimes" common after harvest rains. Improves filterability and sensory qualities. See also: Beta-glucanase, Scott Labs.

ROHAPECT® VR Super L – Improves color stability of reds and minimizes fining for whites. See also: Proteinase, Scott Labs.

ROHAPECT® B1L – Increases yields from hard-to-press grapes. See also: Hemicellulase, Scott Labs.

ROHAPECT® D5L – Keeps winery controllers at bay. Increases free run and clarification. See also: Pectinase, Scott Labs.

ROHAPECT® 7104 – Intensifies the varietal aroma of white wines. See also: Glycosidase, Scott Labs.

SCOTT LABORATORIES

SCOTT LABORATORIES INC.
2220 PINE VIEW WAY
P.O. BOX 4559
PETALUMA, CA 94955-4559
(707) 765-6666
TELEX 171494 · FAX (707) 765-6674

röhm

SCOTT LABORATORIES LTD.
950 BROCK ROAD SOUTH
PICKERING, ONT.
L1W 2A1, CANADA
(416) 839-9463
TELEX 06-981445 · FAX (416) 839-0738

LEFT: Rolls of cardboard containing larvae fit into ice cream containers.

BELOW: After pupation, cardboard rolls are placed in the insectary.

After detection of 5th instar larvae on vines, collectors go into the vineyard twice a week, in the morning hours, to collect larvae. Individual leaves are pulled or branches shaken to dislodge fifth instar larvae into white plastic garbage bags which are kept in a shaded area.

The fifth instar larvae are placed into used 5-gal ice cream containers, containing five rolls of corrugated cardboard (1½-inch wide). The larvae will pupate inside the corrugation on each side of the rolled cardboard. If larvae are placed in a box without corrugated cardboard, there would be mass pupation, one on top of another, and a majority of the parasites would die, due to enclosure.

The rolled cardboard has wood spacers ½-inch to ¾-inch thick between the roll and the bottom of the box to provide air space between layers. About 1,800 fifth-instar larvae are placed between the spacers (900 on each side). More spacers are placed on top of the bottom roll and the process repeated. A small mesh netting covers the open top of the ice cream containers to prevent larval escape.

Three to five days are needed for the fifth instar larvae to undergo pupation. The cardboard rolls are then retrieved and placed into an insectary cage. In two to three weeks, WGLS moths and parasites will begin to emerge.

The insectary cage is designed for easy retrieval of the parasites and WGLS moths. The moths are vacuumed out one by one with a special vacuum pump with a ¼-inch diameter hose and disposed of. Parasites are collected in the same manner, but at a reduced suction so not to harm their very delicate bodies.

A hyper-parasitic wasp (*Hymenoptera Pteromalidae Dibrachys* *cavus*) also occurs in the vineyard. It has a close resemblance to the beneficial parasitic wasp and could be introduced back into the vineyard, if not carefully selected from the insectary cage. It is believed that this hyper-parasitic wasp parasitizes the beneficial WGLS parasites.

Parasitic wasps and flies are collected into small vials and placed into an iced cooler so they will not perish from overheating. (This is especially important when releasing parasites into the vineyard during very warm mornings.)

Problems of using beneficial insects to combat the WGLS

To date, the parasites have been very slow in establishing themselves and have not been able to adequately control the WGLS.

The labor needed to collect fifth instar larvae and reintroduce parasites into the vineyard conflicts with established work schedules. (This is especially true during the latter part of the second generation which occurs during grape harvest.)

Spraying during the second generation is avoided in order to preserve all the beneficial insects in the vineyard. Pre-harvest intervals also prohibit the use of late sprays.

How to enhance parasitism

Integrated pest management must be followed closely to enhance the parasitism rate. *Bacillus thuringiensis* can be sprayed in the vineyard and will reduce a large percentage of first through third larval stages. As a result, a lower percentage of larvae will reach the fourth and fifth instars.

A multi-pheromone trap strategy to lower larval populations can be used, but is very costly in materials and labor. A beneficial parasite program should first be implemented on a small acreage basis. The number of untreated acres can be increased only when parasitism rates are above 80% to 90%.

Washing all vineyard equipment before moving from one block to another or ranch to ranch will minimize the mechanical spread of WGLS.

Cost of beneficial insect program

In 1991, total dollars spent for the collection, rearing and reintroduction of beneficials in 20 acres totaled $15,000. The entire Callaway vineyard is 800 acres. If cryolite was sprayed one time during the growing season, the cost would have been $16,000 for 800 acres. A total of 200 acres were sprayed in 1991.

One can easily calculate that spraying insecticides is much more economical. However, one lesson learned at Callaway is that once you are committed to spraying with insecticides, you upset the balance of nature and, therefore, will always need to spray with insecticides for control. Callaway Vineyard & Winery is committed to the biological control concept. As a component of integrated pest management, the beneficial parasites will ultimately gain control over the WGLS.

Callaway vineyard management feels confident that in 1992 the beneficial insect program will achieve a 80% to 90% parasitism rate so they can steadily increase the acreage covered with this management program. ■

WHY INNERSTAVE?

INNERSTAVE™

- **Some wineries install INNERSTAVE™ to re-new barrel flavors**
- **Others install INNERSTAVE™ to re-juvenate flavorless tanks**
- **Every winery using INNERSTAVE™ is saving money**

If you're interested in improving oak flavors in your wine and saving 75% of the cost of barrels, call INNERSTAVE™ (707) 996-8781

Vineyard in late spring with barley covercrop.

Livermore Valley grape growers balance nature and science

By Mike Miller

Grape growers in California's Livermore Valley are discovering that the technological advances of the 1950s and 1960s, that promised to make grape growing more affordable, productive, and efficient, did not forsee the long-term effects.

America's penchant for cleanliness and order led to long rows of tightly cropped vineyards bare of weeds and pests. It also led to a gradual build-up of synthetic chemicals, destruction of the natural predator/host balance, and increasing production costs.

As a result, a new philosophy is taking root in the Livermore Valley, where viticulturists are returning to many more practical and environmentally-friendly vineyard practices.

"It's better for the vineyard," explains Steve Kalthoff, of the sustainable viticulture practices used on his 65 acres of Chardonnay and Cabernet Sauvignon. "The more nature can take care of itself, the better it is for the final product."

Kalthoff and other growers in this wine country 45 miles east of San Francisco have felt the pressure from wineries and consumers to produce fruit with a minimum use of chemicals. But that pressure is only part of the reason growers increasingly are using sustainable agriculture practices and turning away from chemical spray programs.

"Whenever I have to deal with pesticides in my vineyards, my first consideration is to avoid using pesticides," says Earl Ault, owner of Cedar Mountain Winery, who restricts chemical use to the control of mildew. That decision is heavily influenced by economic considerations, he admits, pointing out that the high cost of chemical inputs are as much an inspiration for using sustainable agriculture methods as the environmental concerns. "It's cheaper to be clever than to buy a bunch of chemicals."

The cost of purchasing and applying chemicals has become exorbitant, agrees Ralph Riva, Wente Brothers' Vice President of Agricultural Operations. He notes that sustainable viticulture techniques are a viable alternative. "We are finding that many of the old, natural techniques actually work. They can replace some of the techniques used in the 1950s and 1960s based on chemical control. We can go back to more biological and conventional practices."

Ultimately, Riva and his colleagues in the 15-mile-long valley recognize that a combination of biological controls and spot-treatment sprays (on highly infested blocks and their buffer zones rather than an entire vineyard) has provided unanticipated advantages in the vineyard.

In the last several decades, "growers ran a sprayer through their vineyards to reduce weeds," says Gloria Retzlaff-Taylor, co-owner of Retzlaff Vineyards. Experience has shown, however, that this type of regular control may create more problems than it solves.

"We are not fanatics about keeping every weed out of the vineyard," she adds, prefering to minimize disking. "Weeds put down roots which keep the ground open to allow moisture to reach the roots and also provide rabbits with an alternative food to young vines.

"Sustainable viticulture demands that growers find a balance between the natural advantages and disadvantages of all of the biological and environmental factors in the vineyard."

A balancing act

It is that sense of balance that seems to be the underlying theme for Livermore's practitioners of sustainable viticulture.

"We are growing incredibly disease-free grapes," Taylor says of the fruit she describes as being largely resistant to disease and pests.

"Good grapes come from a good production balance. We're not over-cropping our vines," she says. "The vines are cordon-pruned in the winter, six spurs/cordon and two buds/spur for a total of 24 buds/vine. In the spring, we remove the extra shoots (beyond the favored 24) the vine sends out — we call this `finger pruning.' This is very important because it focuses all of the vine's energy to the fruit-bearing buds. It also opens up the canopy for better air circulation and light penetration.

"At veraison, we hedge the canes back to about 16 leaves on each cane to inhibit new leaf growth and continue to force the vine's energy into the ripening of the fruit. The end result is an incredibly strong vine. Strong, healthy vines are not susceptible to insect invasion.

Riva concurs, "The main thing in sustainable agriculture is that you try to keep your soil in as good condition as possible. You try not to overload the vines. By doing that, you keep the vine itself in balance and healthy."

Finding that balance in the control of pests first takes an understanding of the role of insects in nature. "Pests were designed to decompose residue and anything that is basically out of balance," adds Riva. "If you stress the vine, the vine is out of balance. As far as the insect knows, it's his role to destroy it. If you can keep the vines in good balance without being affected by nature's stress, in most cases, insects won't attack."

The challenge of achieving that balance and producing strong vines while minimizing the use of artificial inputs is what sustainable agriculture is all about. While techniques vary from vineyard to vineyard, most Livermore Valley sustainable viticulture proponents agree that the most valuable tool is an astute eye.

"The thing about growing grapes, or growing anything, is that you have to be very observant," says Taylor. "You have to watch for yourself what is happening in the vineyard and think of creative ways to sustain it."

While facts and figures play a role in evaluating crop performance, Riva agrees that observation and instinct are critical. "You can't determine, on tonnage figures alone, that you've overloaded the vines. Vine growth and vigor has to be taken into consideration. When I see these indicators dropping off during the peak maturing season, I know there's a problem. I get a gut feeling for an individual block based on my experiences and knowledge.

Second cultivation in late spring doing two operations in one pass (hoe-plow vine rows and disc middles).

"As a rule, if the duration of maturity is prolonged as compared to similar blocks that season, it could be an indication of an overcropping problem. I expect to see the Brix climb about 1% per week, but I can't rely just on those figures because the weather and vineyard block location can play such a big role in all of this."

"The most important thing to us," Ed Ault of Cedar Mountain says, "is that we use common sense and look at the vine to see what is needed, and react."

Part of that attention includes vigilant review of the latest research. "On a general basis, I'm watching the vineyard more closely," Kalthoff says. "But I also keep my thumb on what my neighbor is doing, what the university is discovering, and what everyone else in the industry is doing to produce better grapes, more affordably, and with fewer pesticides."

All of this demands a greater investment of time and attention, but growers agree that the payoff is a cleaner crop, lower production costs, and healthier vines overall. "It takes a little more planning and coordination," Riva admits, "but once the sustainable ball gets rolling, it is easy to keep in motion."

Cover crops employed

Cover crops are being employed more widely in the valley as a sustainable viticultural practice. "For a long time we didn't grow any cover crop," Riva reports. "Now we've re-incorporated cover crops back into our program."

Livermore grape growers have discovered that, far from being a nuisance, cover crops offer considerable benefits, from soil penetration through root activity to serving as a natural soil enhancer.

"Anytime you can improve the organic matter and get decomposition of organic matter, you get flocculation in the soil," Riva adds, "and that increases aeration and water holding capacity. It's just like having a giant sponge out there and the spongier you can get it, the better. There are more capillaries or openings for water and air to be captured for the roots."

To accomplish this, Riva likes to grow a good cover crop in the 2,000 acres of Wente Bros. vineyard he oversees in the Livermore Valley and in Monterey County. "It's nice to see a clean vineyard out there, but I think people interested in sustainable agriculture are beginning to discover that monoculture is not the answer."

Wente's cover crop may include vetch for nitrogen, bell beans for soil penetration, barley for erosion control, or natural weed covers like bur clover, filaree, or wild oats.

Late in the winter or early spring, the cover crop is disked under, decomposes, converts into organic matter, and gradually releases nitrogen. Vineyards in need of additional organic material might be spread with pommace (green or composted) after harvest.

"It's my personal feeling that as long as the vineyard is clean by late summer, so there is no competition for moisture, then I've accomplished my mission in my sustainable farming practice," Riva says.

All the grape skins are put back into the Retzlaff Vineyard and the prunings are rotovated back into the soil. "Over the past ten years," reports Taylor, "this has added a lot of organic matter to the soil that aids in water retention. I'm sure that it also replenishes the nutrients."

Cover crops offer the added benefit of providing a food source for predatory insects who regulate pest populations. In fact, providing habitats for these predators and encouraging their growth is a key to most practitioners of sustainable viticulture in the Livermore Valley.

A creek that runs along Steve Kalthoff's vineyard is home to a wild shrub (*Bacruis*, also known as coyote bush or grease wood) that hosts the wasp (*Anagrus Epos*) which preys on leafhoppers. Through close observation of his vineyard and the value of the wasp, Kalthoff discovered the considerable benefits of this otherwise innocuous shrub. A bit more research showed that the same wild shrub was planted in the vineyards by Livermore 'old-timers' for the very purpose it now serves.

"We now provide alternate plants alongside the vines so that natural predators of the leafhopper have a place to live," Kalthoff explains.

When the population of natural predators is weakened or insignificant to handle a marked increase in pests, predators are introduced. "Every spring, we put ladybugs and praying mantis in the vineyard to reduce the general insect population," Taylor explains. These predators have been released in the vineyard for eight years.

While building favorable habitats for predators is important, all of the valley's growers recognize that it is equally important to eradicate conditions and habitats that foster the growth of pests.

"After we grafted vines several years ago, we had some problems with twig-borer," Kalthoff reports. "The immediate reaction was that we ought to spray for it. Instead, we waited and watched for a while. One of the things we decided to do, in the meantime, was remove the vine cuttings. Come to find out that a lot of these twig borers had over-wintered in that stuff. By cleaning out the trash, we eliminated the twig borer. I think it's a classic example of what to do instead of spraying."

There is an even more pro-active stand against pests at Retzlaff Vineyards. "Leafhoppers first appear in the early spring," Taylor explains. "They have a 6-week cycle during which they lay eggs. We don't remove the lower suckers from the vines until the leafhoppers have completed their egg-laying cycle. Then, we remove the suckers in hopes of destroying the eggs that have been deposited there. I learned this from Walter Detjchens, another Livermore Valley grape grower."

Advantages in Livermore Valley

While the problems and solutions that Livermore Valley sustainable viticulturists face are common to nearly any grape growing region, the area does have a few advantages that make the implementation of sustainable viticulture more practical.

"We have a modest weed problem that can be taken care of mechanically," Ed Ault of Cedar Mountain says. "Some parts of the valley are so rocky that they don't need any weed control. In our case, we've found that is costs as much to use them (herbicides) as it does to hire a tractor driver to turn weeds under."

In terms of mildew, the Livermore Valley's climate also plays a beneficial role. The daytime climate is warm (average mean temperature during ripening: 71°F), with nights cooled by strong, westerly winds from the San Francisco Bay.

"We probably have less rainfall (12.5-inches/year average) than almost any other Central Coast wine region," Taylor reveals. "This means we pretty much can control the moisture our vineyards get (by irrigation), and also the time of day (they get water). With this kind of control I think we can have a healthier vineyard."

Despite the best efforts to remain pesticide-free, nature occasionally is thrown out of balance, and the use of pesticides becomes necessary.

ACTIVE DRY WINE YEAST
ENOFERM™

Yeast strains with specific wine making properties
- BORDEAUX RED
- BURGUNDY
- ASSMANSHAUSEN
- L2226
- M2
- ICV D47
- AVIZE
- SIMI WHITE

NUTRIENTS
CEREVIT for YEAST
OENOVIT for MLF

Distributed by:
VINQUIRY
16003 Healdsburg Avenue,
Healdsburg, CA 95448.
tel. (707) 433 8869 - fax. (707) 433 2927

MANUFACTURED BY LALLEMAND INC. 1620 PREFONTAINE
MONTREAL QUEBEC HIW2N8 CANADA
TEL. (514) 522 2133 FAX. (514) 522 2884

BARREL BUILDERS

- BARREL SHAVING AND RETOASTING
Router cut method, renews the life of your experienced cooperage. Oak fire retoasting to add another flavor component. Economical!
- BARREL REPAIR SERVICE
From stave replacements to bore bug holes, no repair is too big or too small. Expert coopers on duty. Experience the oldest cooperage in the Napa Valley.
- TANK ASSEMBLY AND REPAIR
Reliable installation by licensed & insured coopers. Our experienced coopers have dismantled and reassembled many tanks of various sizes, and have a good deal of working knowledge of many kinds of tank repair techniques. Competitive rates.

BARREL BUILDERS, INC.
ST. HELENA, CA
1-800-365-8231
(707)942-4291

"The unfortunate thing about using pesticides is that you upset the balance of nature," Kalthoff says. "You get rid of the predators as well as the pests." But, when the number of pests rises beyond the capability of the natural predator, pesticides are necessary.

"What you want to avoid is getting in a regular routine, where you spray for something regardless of whether it is necessary or not. It's a question of management — not a stimulus response of `they are out there, boom, kill them.'"

Riva, who also manages 160 acres of certified organic vineyards for Wente, recognizes the occasional need for chemical inputs as well. "With sustainable, if you run into a problem, you can spot-treat it with a given chemical application to stop it," he explains. "But the general practice is to minimize the use of chemicals and to try and use sustainable techniques."

To that end, the only treatments Riva applies to the sustainable vineyards that the organic vineyards do not receive is a sterile inhibitor against powdery mildew. Elemental sulfur is used on organic vines. As needed, some herbicides also are applied to protect young vines in sustained viticultural blocks.

Riva explains that implementing sustainable viticulture practices can pose some challenges. "One of the larger limitations is the amount of resources a vineyard operation has to have in order to purchase some of the necessary tillage tools. They may be somewhat costly to get started and a bit more technically complicated to run than just a sprayer."

Despite these limitations, the Livermore Valley's proponents of sustainable viticulture stand faithfully by the new philosophy that relies so heavily on traditional, old practices.

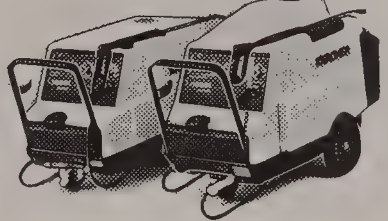
"Sustainable viticulture isn't so idealistic that it's impossible to accomplish — nor so costly," Riva says. "It's something that uses a lot of the older techniques. It is a sound practice."

"It has been tremendously successful for us," Retzlaff Vineyards' Taylor declares. "Every year it gets better. I think our vineyard is more in balance today than it was 12 years ago. In the long run, these subtle changes will benefit not only the landowner and the wildlife, but also water quality and farming in general." ■

KARCHER

Karcher's New
Cold-Hot-Steam
High-Pressure Cleaners

High-Pressure
in Perfection



- New: AVS Anti-Kink-System
- New: ECS Safety System
- Perfect for cleaning: fast-handy-practical.
- Perfect in design: strong-economical-user friendly
- Perfect in quality: reliable-robust-long lasting

Your Authorized Karcher Dealer:

Pat Watkins
Napa Fermentation
724 California Blvd.
Napa, CA 94559
(707) 255-6372

BLUE GRASS
COOPERAGE

Barrel after barrel…

…you will find consistent quality and craftsmanship. Blue Grass Cooperage has been hand-building fine American Oak barrels for 50 years. Our quality and service will assure you complete satisfaction.

Please call for more information.
Blue Grass Cooperage
Louisville, Kentucky
(502) 368-1626

LALVIN

The Finest Wines Are Made With LALVIN Special Yeasts

LALVIN dry wine yeasts are isolated and selected by top enologists and researchers at renowned institutes.

It's not surprising that the finest wines are made using only the finest ingredients.

It's also not surprising that the finest winemakers use Lalvin Dry Wine Yeasts!

LALLEMAND

SCOTT LABORATORIES

2220 Pine View Way • P.O. Box 4559 • Petaluma, CA 94955-4559
707-765-6666 • Outside CA Call 800-821-7254
950 Brock Rd. So. Pickering Ontario Canada L1W 2A1 • 416-839-9463

Biochemistry of yeast growth

By Peter Bell, winemaker
Vinifera Wine Cellars, NY

Introduction

A thorough knowledge of the biochemical aspects of yeast growth is certainly not a prerequisite for winemaking, but winemakers can often benefit from an enhanced understanding of the mechanisms involved in the conversion of sugar to alcohol and carbon dioxide. The following is an attempt to provide an overview of wine yeast behavior from a biochemical standpoint, at a level that is comprehensible to readers with some scientific training.

Wine yeasts, being facultative, can metabolize substrates aerobically (by respiration) or anaerobically (by fermentation). Although, from an energy standpoint, yeast cells would 'prefer' aerobic growth (it would enable them to produce more cells at a higher rate), no ethanol is produced this way. So winemakers must take advantage of the anaerobic growth capacity of yeast.

The key features which differentiate aerobic from anaerobic growth are the oxidative, or biochemical, pathways used. These are quite complicated.

The overall, simple equations for the oxidation of glucose by yeast are as follows:

$C_6H_{12}O_6 + 6O_2 + 6H_2O \longrightarrow 6CO_2 + 12H_2O + 36$ ATP (respiration), and
$C_6H_{12}O_6 \longrightarrow 2C_2H_5OH + 2CO_2 + 2$ATP (fermentation),

from which it can be seen that the two major byproducts of anaerobic oxidation[1] (there are several minor ones) are crucial for wine production (CO_2 in the case of sparkling wines).

To put it another way, if yeast acted only aerobically on grape juice there would be something akin to the reverse of the Biblical miracle involving water and wine.

Nevertheless, there is significant overlap between aerobic and anaerobic yeast growth. Both make use of the glycolytic pathway, which produces two pyruvate molecules for every molecule of glucose degraded. This pathway is concerned with the accumulation of energy in the form of adenosine triphosphate (ATP), a high-energy compound that is used in a number of biosynthetic reactions.

Both also employ an additional pathway called the pentose phosphate pathway, wherein glucose is metabolized to produce among other compounds $NADPH_2$ (useful for its reducing power in biosynthetic reactions), pentoses (useful as substrates for the production of nucleic acids and nucleotide-containing prosthetic groups), and starting materials for vitamins and certain amino acids.

Thereafter, aerobic metabolism proceeds into the citric acid, or tricarboxylic acid (TCA) cycle, a much more powerful energy-yielding process, whose end product is mainly carbon dioxide. Many anaerobes, as well as aerobes, employ this cycle. In both, it can be used as an anaplerotic pathway, involving the synthesis of amino acids, or for providing carbon skeletons for other reactions — for example, the urea cycle.

Anaerobic metabolism converts the pyruvate formed by glycolysis to two ethanol and two carbon dioxide molecules. This step is known as alcoholic fermentation. Pyruvate can also be degraded a third way, to lactate. This process occurs in the muscle tissues of animals and in lactic acid bacteria, and is known as lactic fermentation, but is not a major pathway in yeast.

Glucose is not, of course, the only substrate degraded by glycolysis. Fructose is present in roughly equal proportions with glucose in grape juice; it enters the glycolytic pathway by being phosphorylated by hexokinase to fructose-6-phosphate, which is an early intermediate in the 'mainstream' glycolytic pathway.

It is clear that, above all, yeasts need sugar as an energy source. The yeasts' requirement for carbon is also satsified by sugar. In addition, there are a number of other essential nutrients required, and these will now be discussed briefly.

Like all cells, yeasts require certain materials from which cell components can be synthesized: the vitamins biotin, inositol, nicotinic acid (niacin), pantothenic acid, para-aminobenzoic acid, pyridoxine, and thiamine; and the minerals copper, iron, magnesium, nitrogen, potassium, phosphorous, and sulfur.

In addition to being required for growth, some nutrients (zinc, cobalt, iodine, and calcium) are also required for alcoholic fermentation. Adequate amounts of all these vitamins and minerals are usually present in grape musts, although commercial supplementary preparations are often added to white wine fermentations and highly-clarified juice.

A more problematic, and certainly more discussed, nutrient is nitrogen. Nitrogen availability (the amount present and the form it's in) can be a limiting factor in yeast growth. Yeast cells consist of 25% to 60% nitrogenous matter, equivalent to as much as 10% of the dry cell weight. In order to grow and reproduce, they therefore need a readily assimilable nitrogen source. The most easily available form is the ammonium cation, NH_4^+. Free amino acids, proteins and polypeptides can be a source of the NH_4^+ ion.

The nitrogen content of grape musts depends, to a large extent, on the wine region in which the grapes are grown. French enologist Emile Peynaud (1980) states that most of fermentation is characterized by "starved yeasts in a state of (nitrogen) deficiency," while Amerine *et al.* (1980), referring to California conditions, claim that most grape musts contain enough nitrogen for four or five conventional fermentations.

Furthermore, even if the total nitrogen content of musts is adequate, the rate of assimilation of that nitrogen can vary according to a number of factors: for example, the presence or absence, and relative proportions, of various amino acids. Many winemakers take no chances and customarily add an ammonium salt such as diammonium phosphate to all fermentations. This practice has the added advantage of preventing formation of H_2S in the fermentation.

The nutrients required for growth are basically the same whether the yeast is growing aerobically or anaerobically, although the rate of utilization naturally differs. Yeasts in anaerobic fermentation obtain less energy from glucose (the glucose is not as fully utilized). As a result, under anaerobic conditions, cell yields are substantially lower: 12.8X fewer cells* are produced per mole of glucose compared to aerobic growth. As well, the actual cell growth rate is sub-maximal under anaerobic conditions.

---

[1] more strictly, a series of dehydrogenations

*theoretically/ideally

The TCA cycle has another function: its intermediates are essential precursors for the synthesis of amino acids and fatty acids. To produce these precursors — oxaloacetate, ∝-ketoglutarate, acetyl CoA, and fumarate— facultatively anaerobic yeasts make use of parts of the TCA cycle. The precursors themselves serve as the carbon skeletons from which amino and fatty acids are synthesized.

Yeasts growing anaerobically exhibit markedly different cellular structure to those which grow aerobically. The most obvious difference is in the cells' mitochondrial structure. Anaerobically-grown yeasts produce promitochondria which contain the enzymes necessary to catalyze those biosynthetic reactions (sterol formation, fatty acid synthesis) that utilize molecular oxygen as a substrate.

The functioning of the promitochondria depends on the presence of sterols and unsaturated fatty acids, or lipids. The fatty acids of anaerobically-grown yeasts have relatively short (6-10-carbon) chains that are more highly-saturated than those of aerobically-grown yeasts. This occurs because of a lack of molecular oxygen during biosynthesis.

Both sterols and fatty acids require a small amount of molecular oxygen for their formation, and so some contact with air is necessary during the early stages of the growth of a cell population. If insufficient oxygen is available, these lipids will not be produced in sufficient quantities to support subsequent anaerobic growth. This is why dried yeasts are cultured in highly-oxygenated conditions and why winemakers, when building up a cell culture, will aerate it: oxygen contact ensures that the lipid content of the mitochondria will be high enough for fermentation to proceed to completion.

Whether yeasts function aerobically or anaerobically is not merely a matter of the presence or absence of oxygen. Another important factor is the sugar concentration of the cell growth medium. Above a fairly low sugar concentration, about 0.5%, aerobic growth of yeasts is repressed: glucose hinders the formation of active mitochondria and respiratory enzymes. Since grape musts are generally much higher in sugar than that, the yeast cells will grow mostly anaerobically even if oxygen is supplied.

The behavior of yeast in a fermentation is governed by a number of other factors, the most obvious of which are temperature and pH. The temperature optimum of *Saccharomyces cerevisiae* is somewhere in the range of 72°F to 80°F, and in fact, many fermentations are carried out in that range.

Most yeasts become inactive below about 45°F. Above 90°F, fermentation will be rapid but the yeasts will lose their vigor very quickly and may not convert all available sugar to alcohol. At high temperatures, yeast cells "do not withstand alcohol easily, they are less able to assimilate the nitrogenous substances, they lose sterols more quickly, [and] their reproduction, then the fermentation comes to a halt" (Peynaud, 1980).

Alcohol inhibits yeasts at all temperatures, but this effect is more pronounced at higher temperatures. There is some evidence (Beraud and Millet, 1949) that

O'SULLIVAN COATINGS

Superior Food-Grade Coatings For Wineries & Vineyards

Epoxies
Mildewcides
Enamels
Floor-Coatings

Exclusive Agents
PICKERING WINERY SUPPLY
415-821-2400
1300 22nd Street, San Francisco, CA 94107

MEL KNOX
Barrel Broker

Francois Frères of Burgundy
Tonnellerie Taransaud of Cognac

- New barrels of all sizes
- Tanks
- Used cooperage

505 29th Avenue
San Francisco
California 94121

415-751-6306
415-751-6806

the lower the fermentation temperature (up to a point) the greater the alcohol production per cell. Of course, at lower temperatures, less ethanol is lost from the wine due to volatilization.

The pH of a must is another important factor affecting yeast behavior. Wine yeasts can operate over a broad pH range, though their optimum is generally higher than wine pHs. Fermentation is not significantly suppressed unless the pH is below about 3.0.

To winemakers, pH control is aimed more at controlling the growth of undesirable yeast and bacteria species, and at maintaining the efficacy of sulfur dioxide, than influencing wine yeast behavior. For example, *Leuconostoc* growth can be favored over that of *Lactobacillus* and *Pediococcus* by keeping the pH below about 3.4. ■

References

Amerince, M.A. et al. **The Technology of Winemaking**, *4th ed., AVI Publishing, 1980.*
Beraud, P. and J. Millet. "Observations sur le pouvoir alcoogéne des levure cultivées a basse temperature." **Ann. Inst. Pasteur** *77 (1949), pp 581-587.*
Peynaud, E. **Knowing and Making Wine**. *Wiley and Sons, 1980.*

Now Available **$14.00**

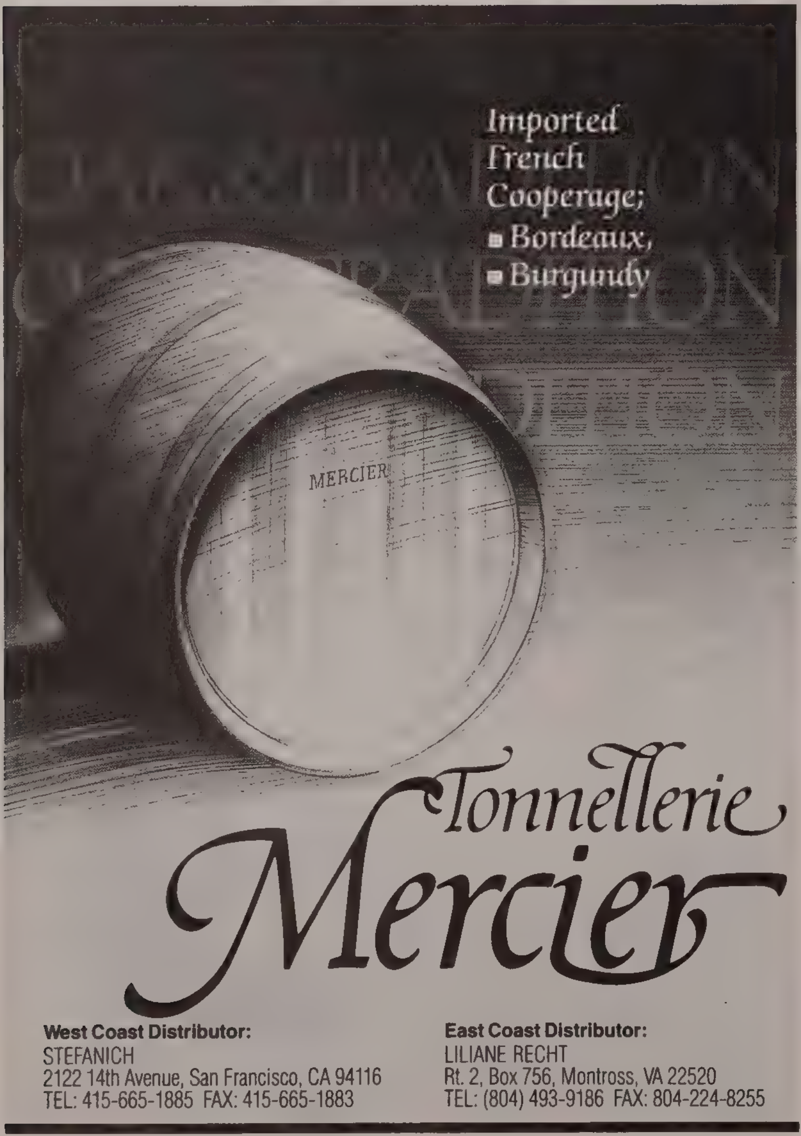
Proceedings of the
FOCUS ON EASTERN U.S. CHARDONNAY
Symposium
March 23-25, 1991
Virginia Polytechnical Institute and State University

Sponsored by:
Virginia Polytechnical Institute and State University • The Virginia Winegrowers Advisory Board
The Virginia Vineyards Association • The Virginia Wineries Association • Additional contribution from *Practical Winery & Vineyard* Magazine • ASEV, Eastern Section

Proceedings edited by Tony K. Wolf and Bruce W. Zoecklin

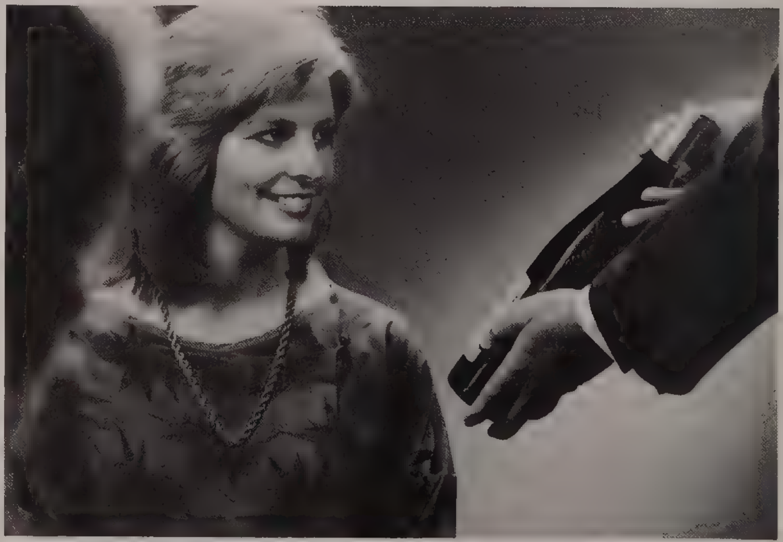
Titles of papers:
Cultural practices affecting vine vigor; Vineyard pre-plant decisions that affect vine vigor and wine quality; Commercial application and results of canopy manipulation; Training and trellising trials in California; Clone and rootstock research in California; Powdery mildew resistance to fungicides; Cultural and chemical control of botrytis; Grapevine yellows in Virginia vineyards; Survey for leafhoppers in Virginia vineyards infected with grapevine yellows; Grape berry moth research in Virginia; Chaptalization, fining agents and update on BATF regulation revisions; Burgundian practices for the New World; Non-intrustive Chardonnay production techniques in Oregon; Maturity Determinations for Chardonnay; Yeasts for Chardonnay production; Use of Malolactic starters in the winery; Malolactic flavor and Chardonnay; East Coast vs.West Coast trends in Chardonnay style; Selling wines from nowhere; Chardonnay production practices in the USA; Chardonnay production in Virginia; Malolactic fermentation in Virginia.

Send $14.00 payable to Virginia Gruver and mail to: "Chardonnay Proceedings", Winchester Agricultural Experiment Station, 2500 Valley Ave., Winchester, VA 22601

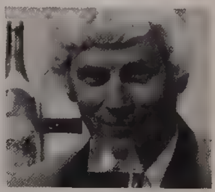


West Coast Distributor:
STEFANICH
2122 14th Avenue, San Francisco, CA 94116
TEL: 415-665-1885 FAX: 415-665-1883

East Coast Distributor:
LILIANE RECHT
Rt. 2, Box 756, Montross, VA 22520
TEL: (804) 493-9186 FAX: 804-224-8255


Looking Good.

Your favorite wine. You recognize the label. It is as clean and unscathed as when it traveled from the labeler to the carton. The bottle of wine in a carton can travel up to 3,000 miles. That's rough riding for a delicate label. Gordon Graphics has ULTRA-COTE® label finishing (available in gloss, semi-gloss or matte finish) that will resist the scuffing a label receives before it reaches your customers. At Gordon Graphics we are prepared to deliver your labels—looking good. Call us about your labeling needs. (415) 883-0455.


Gordon Lindstrom

GORDON GRAPHICS
15 Digital Drive • Ignacio, CA 94947

Winning profits with Guerrilla Marketing:

Magic words of marketing

By Jay Conrad Levinson

Magic has durability. This is proven over and over by guerrilla wineries which have the guts to rely upon old words in their marketing materials and sales presentations.

The words aren't necessarily marketing words, but they should be, whenever possible. When blended with new words, expressing ideas about your winery, the magic words give new power to your marketing.

Although guerrillas know by happy experience that the leading magic word is 'free,' 15 more words make up the complete 'Sweet Sixteen' of a guerrilla marketer's vocabulary. The 'Sweet Sixteen' have been established and verified since the turn of the century, though I'm not sure which century.

But I am sure the Sweet Sixteen Magic Marketing Words are:

free
save
discover
safety
health
you
guarantee
love
easy
money
new
proven
results
sale
benefits
announcing

Researchers have determined that those words are among the most persuasive words in the English language. I predict 'fast' soon will join the list.

The words carry their power because they: have built-in benefits, are about what people want, eliminate doubts, and some have inherent excitement. I remember seeing 'sale,' 'comfort,' and 'trust' on lists of magic words. Some words, but not all, lose some, but not all, of their punch over the years.

A study of 100 famous profit-producing advertising headlines adds these to the magic words: your, now, people, want, and why. Headlines that ask questions are automatically involving to readers, but you've got to be sure that the answer is never 'no' to the question, and you've got to be careful not to ask trite questions.

In numbers far exceeding Sweet Sixteen, there are magic phrases that persuade people to see it your way, desire your wines, and buy them. Some of these are: limited-time offer, 50% discount, private reserve, limited production, award-winning, this month only, and many more that I'm sure you know well.

Remember, as increasing numbers of marketers do, that the most readable phrase in the language, the one with the magic to capture attention and readership, is the reader's name.

Use the reader's name and those magical words in direct mail, on customized labels, invitations, certificates, advertising specialties, and membership cards (to **your** winery club; if you don't have one, create one). People love seeing their name in print — almost anywhere.

The idea in marketing is not to shun these words in a mindless search for originality, but to use them for their pull and proven ability to generate profits. The key word in the prior sentence is 'proven' because that's what gives the words their marketing magic.

The marketing field is not full of many sure bets. There are things that have worked before, but haven't yet established their staying power.

Whenever you've got the opportunity to go with something that has been ***proven by time to produce results for marketing investments*** — and believe me, you won't have many of those — jump at that opportunity. It's magic!

Magic in wine marketing is hard to come by. Even when it comes in the form of simple words, don't miss out on it. ■

(Jay Conrad Levinson is the author of ***Guerrilla Marketing****,* ***Guerrilla Marketing Attack****, and* ***Guerrilla Marketing Weapons****; he writes and publishes* ***The Guerrilla Marketing Newsletter****. For a free catalog of these and other products and services, call toll-free 800/748-6444.)*

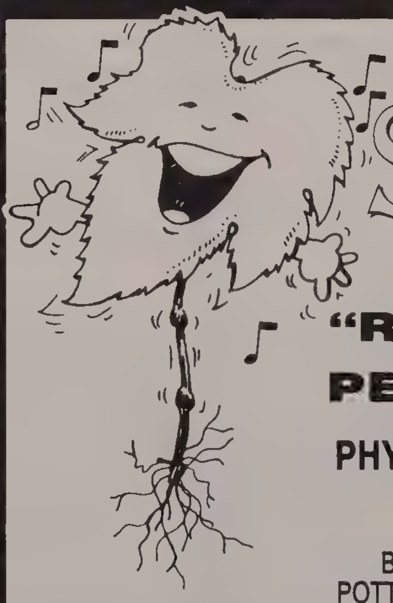
FINANCIAL DISTRESS

JOHN MACCONAGHY
ATTORNEY AT LAW

- COMMERCIAL LITIGATION & COUNSELING
- BANKRUPTCY & CHAPTER 11 REORGANIZATIONS
- LOAN WORKOUTS & FORECLOSURES
- EXPERIENCED IN THE GRAPE & WINE INDUSTRIES

1900 POWELL STREET
SUITE 230
EMERYVILLE, CA 94608
TEL: (510) 652-5512

466 1ST STREET EAST
(ON THE PLAZA)
SONOMA, CA 95476
TEL: (707) 935-3205



SUNRIDGE NURSERY
PRESENTS
"ROOTSTOCKS WITH PERSONALITY"
INTRODUCING
PHYLLOXERA RESISTANT ROOTSTOCKS
CDFA CERTIFIED
BENCHGRAFTS • ROOTINGS
POTTED PLANTS • FIELD GRAFTING

WRITE FOR FREE BROCHURE
441 VINELAND ROAD • BAKERSFIELD, CA 93307 • 805/363-VINE

ADVERTISER PRODUCT/SERVICE INDEX

BARREL BROKER/Cooperage Supplies
Agtex Corp....33
Barrel Builders....38
Blue Grass Cooperage....39
Boswell Company....46
Custom Cooperage....12
Independent Stave Co....22,47
Innerstave....35
Knox Industries....41
Stefanich Mercier....42
Tonnellerie Radoux....29

BOTTLES (Glass)
ENCORE! (Sterilizing/Sales).46
Knox Industries....41
Latchford Packaging/Anchor...48

BOTTLING EQUIPMENT
Carlsen & Associates....12
The Compleat Winemaker....32
Criveller Co....19
fp Packaging....27
KHS Machines....23
KLR Machines....25
SMB Technik....32

BULK WINE BROKER
Joseph W. Ciatti Co....26
Mancuso Wine Brokerage....24

CAPSULES
fp Packaging....27
KLR Machines....25
Lafitte Cork & Capsule....18
Latchford Packaging/Anchor...48
Pickering Winery Supply....41
RLS Equipment....30
Scott Laboratories....34,39

CHEMICALS
The Compleat Winemaker....32
Criveller Co....19
Pickering Winery Supply....41
VINQUIRY....19

CLEANING Equipment/Supplies
The Compleat Winemaker....32
Electro-Steam....33
Key Industrial Associates....32
Napa Fermentations....39
Pickering Winery Supply....41

COMPUTER SERVICES
Data Consulting Associates....46
Pickering Winery Supply....41

CORKS
KLR Machines....25
fp Portocork....31
Lafitte Cork & Capsule....18
Latchford Packaging/Anchor....48
Pickering Winery Supply....41
RLS Equipment....30
Scott Laboratories....34,39

DESTEMMER-CRUSHERS
Criveller Co....19
fp Packaging....27
KHS Machines....23
KLR Machines....25
RLS Equipment....30
Scott Laboratories....34.39

ENGINEERING SERVICES
Arthur Engineering....47
Storm Engineering....46

FARM CREDIT SERVICES
Pacific Coast Farm Credit....9

FILTER EQUIPMENT
Criveller Co....19
fp Packaging....27
KLR Machines....25
RLS Equipment....30
Scott Laboratories....34,39

FILTER MEDIA
KLR Machines....25
Scott Laboratories....34,39

FINING AGENTS
Criveller Co....19
KLR Machines....25
Scott Laboratories....34,39

INSURANCE
State Compensation Ins. Fund..28

LABEL APPROVAL (Assistance)
Government Liaison Services.....5

LABELS (Design)
Blake Printery....30

LABELS (Printing)
Blake Printery....30
Gordon Graphics....42

LABORATORIES (Materials/Wine Analysis)
ETS Laboratories....22
Scott Laboratories....34,39
VINQUIRY....19

LEGAL COUNSEL
Corbin Houchins....46
Ron Larson....46
John MacConghy....43

MALOLACTIC BACTERIA
Condimenta....13
Pickering Winery Supply....41
Scott Laboratories....34,39
VINQUIRY....19

MARKETING
Guerrilla Marketing Newsletter46

NURSERY
Agritope....32
Duarte Nursery....2
Sunridge Nursery....43

PACKAGING
Rock--Tenn Co....10

PRESSES
Criveller Co....19
fp Packaging....27
KLR Machines....25
RLS Equipment....30
Scott Laboratories....34,39

PUMPS
Carlsen & Associates....12
The Compleat Winemaker....32
Criveller Co....19
Key Industrial Associates....32
KLR Machines....25
Napa Fermentations....39
RLS Equipment....30
Scott Laboratories....34,39

TRADEMARK SEARCHES
Government Liaison Services.....5

VINEYARD Equipment/Supplies
Weitech Inc....45

YEAST
Criveller Co....19
Danstar Ferment....38
Pickering Winery Supply....41
Scott Laboratories....34,39
VINQUIRY....19

CLASSIFIED ADS

FOR SALE: Used winery equipment: 1—STD 20' Stainless Steel Receiving Hopper with 12-inch auger varidrive, $16,000. 1—STD Winery 5-ton overhead hoist frame and drive. With hoist, $16,000.00. Without hoist, $10,000.00. To inquire, please call 707/963-3537 and ask for Ron.

ESTATE BOTTLING—Portable Wine Bottling at Your Winery, Owner Operated—Quality Service—Sterile Bottling 2-label Capacity—1,500 cs/day—Generator on truck. Contact: PO Box 338, Rutherford, CA 94573, 707/963-5705.

FOR SALE: Bottling line: 16-valve Otto Sick filler with 4-head corker, completely rebuilt in 1990, 5-head Bertolasso-105 spinner new in 1991, Meyer CM-7 labeller rebuilt in 1989, unscrambler, conveyors, drives, label roll-down and pack-off table. Complete line, capable of 60-BPM, currently in operation. Includes change parts and spare parts. Available August 15. Stags' Leap Winery. 707/944-1303.

FOR SALE: Barrels; 1985 and 1986 Nadalie, Red, $50. 1988 Damay, Billion, White, $120. Stags' Leap Winery, 707/944-1303.

BULLDOG PUP—quality design of this stainless steel racking wand allows you to move wine **gently** using nitrogen pressure. Winemakers love the PUP for racking and/or topping. For information, call the Boswell Company 415/457-3955 or Fax 415/457-0304.

Bottling at Your Winery — Guaranteed Sterile Bottling. Front and back label capability. Quality, professional handling of your wines. Separate labeling only service available. For additional information, contact Don Hudson, **Chateau Bottlers,** 707/963-2323, PO Box 368, Oakville, CA 94562.

Signature Mobile Bottling: Sterile bottling with inverted rinser, deaeration and gas injection station (GAI), pure gravity filler, vacuum corker, spinner, front and back full glue labeler. Call for scheduling now: 800/228-0664.

BARREL STIRRING RODS available. Stop using P.V.C., wood dowels, power drills, etc.! Our stainless steel mixing device is hand-operated — fast, effective, and ***non-oxygenative***. $135 - $170. Call Boswell Company: 415/457-3955.

Custom Méthode Champenoise production available: Mirassou Champagne Cellars is pleased to offer custom Méthode Champenoise production at our newly renovated and expanded facility in Los Gatos. We offer competitive rates for any level of involvement from simple disgorging of your bottled product — to complete service of fruit, sourced by us to finished cased goods. Limited quantities of cuvée stock also available. Refs available from satsified clients. Reply in confidence to: Sean Lin, Mirassou Champagne Cellars, 300 College Ave., Los Gatos, CA 95032 Phone: 408/354-2165, Fax: 408/395-5830.

BOOKSHELF

USE THE BOOK ORDER FORM ON THE POSTAGE- PAID ENVELOPE IN THIS ISSUE • Your wine books promptly shipped from one source.

Angels' Visits
D. Darlington
An inquiry into the mystery of Zinfandel. Interviews with Paul Draper of Ridge Winery and Joel Peterson of Ravenswood Winery.
278-pp—$19.95 Order #AV-Zin

Barolo, A study of the wines of Alba
Michael Garner, Paul Merritt
288pp—$29.95 Order #6586

Burgundy, Comprehensive Guide to Producers, Appellations and Wines
Robert M. Parker, Jr.
864pp—$39.95 Order #6588

Chardonnay, Your International Guide
Alan Young
In-depth, comprehensive look at grapegrowing and winemaking including the origins of Chardonnay and regions: France, North America, Canada, Australasia, Italy, and Spain.
182pp—$26.95 Order #PWV-CAY

Commercial Winemaking, Processing & Controls
Richard P. Vine
400pp—$43.95 Order #712

Commonsense Book of Wine
Leon Adams
260pp—$7.95 Order #507

General Viticulture
A.J. Winkler, Cook, Kliewer, Lider
780pp—$42.50 Order #549

Grape Growing
R. Weaver
371pp—$42.95 Order #659

Knowing and Making Wine
Emile Peynaud
391pp—$42.95 Order #898

Making Sense of Wine
A. Young
167pp—$19.95 Order #MSW-AY

Methods of Must/Wine Analysis
M.A. Amerine, C.S. Ough
341pp—$85.00 Order #732

Modern Winemaking
P. Jackisch
280pp—$26.50 Order #907

Now available-back in stock
Production of Grapes & Wine in Cool Climates
David Jackson, Danny Shuster
192pp—$39.95 Order #757

Production Wine Analysis
B. Zoecklin, K. Fugelsang, B. Gump, F. Nury, Fresno State Univ.
550pp—$59.95 Order #PWA

Refrigeration for Winemakers
R. White, B. Adamson, B. Rankine
96pp—$25.00 Order #PWV-RFW

NEW!
Sunlight into Wine
R. Smart/ M. Robinson
Canopy microclimate and management, trallis systems, How to do it.
$35.00 Order #Sun-SR

Table Wines, The Technology of Their Production
M.A. Amerine, M.A. Joslyn
879pp—$40.00 Order #509

The Taste of Wine
E. Peynaud
258pp—$29.95 Order #940

Tasting and Enjoying Wine
Bryce Rankine
Explains how to evaluate wine for professionals and wine lovers
120pp—$17.75 Order #PWV-TEW

Techniques of Accurate Chemical Analysis of Grape Juice & Wine
Patrick Iland
Step-by-step, 'how to' book covering many analyses including helpful hints and diagrams of apparatus.
$37.50 Order #PW-PI

Vines, Grapes & Wines
Janis Robinson
280pp—$29.95 Order #960

Viticulture, Vol. 1, Resources in Australia
B.G. Coombe, P.R. Dry
211pp—$35.00 Order #AIP-VIT-1

NEW!
Winegrape Grower's Guide (Oregon)
Oregon Winegrowers' Association
Viticulturists, researchers, and winemakers combined their efforts into 30 chapters. Chapters include: Selection of variety/site, rootstock, spacing, training, trellising, grapevine propagation, fertilization, pest management, yield prediction, winter injury, vineyard economics.
264pages $29.95 Order#PWVOWGG

A Wine Grower's Guide
Philip Wagner
225pp—$19.95 Order #546

Wine Proceedings 2000-Australia
Proceedings of Wine 2000 Conference, Adelaide, Australia, August, 1989. 23 authors on wine and health; wine industry as a corporate entity, interactin with government; grape supply issues, production economics, marketing distribution.
87pp—$20.00 Order #PWV-A2000

Wines and Winelands of France, "Geological Studies"
Charles Pomeral, editor
370pp—$45.00 Order #6599

NEW FROM WINETITLES

HIGHLY RECOMMENDED

Sunlight into Wine

A handbook for winegrape canopy management

Richard Smart, Australia
and Mike Robinson,
MAF Technology, New Zealand

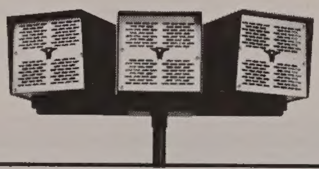
Includes 27 contributors from Australia, New Zealand, and the United States covering the following topics:

- Quality assurance in vineyards
- Canopy management— How to do it
- Winegrape canopies and their importance
- Improving canopy microclimate
- Economics of canopy management
- Constructing trellis systems

Only **$35.00** plus sales tax (in California) and **$3.00** shipping.

Send order and check to: PWV, 15 Grande Paseo, San Rafael, CA 94903-1534

STOP BIRDS FROM EATING YOUR CROP



Av-Alarms are patented, solid-state devices that produce loud, electronic noises that drive birds away from crops--and keep them away. Powered by a 12-volt battery, 110-volt AC or solar panel. Protects up to 10 acres for as little as $400. Two-year guarantee. Weitech, Inc., P.O. Box 1659, Sisters, OR 97759; TOLL FREE 800-343-2659.

MARKETPLACE

DON'T MAKE WINE WITHOUT IT!

Replacing your wooden bungs this year? Fabricated from high grade silicone, the Boswell bung easily outperforms its fir and redwood ancestors. The Boswell bung puts a stop to wicking and requires no pretreatment. Easy to place and remove, the Boswell bung provides extra protection for your valuable barrels. The Boswell bung. Cost efficient. Pure and simple.

For more information contact The Boswell Company
1000 Fourth St., Suite 540, San Rafael, CA 94901
(415) 457-3955 • Fax (415) 457-0304

THE BOSWELL COMPANY

LEGAL COUNSEL

Licensed Businesses
Packaged Goods Distribution
Trademark Protection
Trade Regulation and Antitrust
Regulatory Agency Matters

Serving Wineries Large and Small Since 1971

CORBIN HOUCHINS
Professional Service Corporation

999 3rd Ave., Suite #2675
Seattle, WA 98104

Telephone (206) 343-9597
In Northern CA (707) 224-1536

Legal Services to the Wine Industry

Broad
Schulz
Larson &
Wineberg

Please contact: Ronald Larson

San Francisco
One California Street
Fourteenth Floor
San Francisco, CA 994111-5482
Telephone: (415) 986-0300

Los Angeles
911 Wilshire Boulevard
Suite 2200
Los Angeles, CA 90017-9998
Telephone: (213) 622-0600

Engineering

Winery Water & Wastewater Planning,
Design & Construction Management Services

Engineering specialties include wastewater recycling and system expansions.

Over 30 years experience in the design of water, wastewater, wastewater solids and utilities systems. Domestic and overseas experience with wineries producing table wines and sparkling wines with production capacities from 5,000 to 2,000,000 cases.

Excellent in-house database on process water use of all sizes of wineries. Obtain your utility design services from someone who knows the wine industry.

Storm Engineering
15 Main Street — PO Box 681, Winters, CA 95694
916/795-3506

WINERY PRODUCTION SOFTWARE

complete record keeping for bulk inventory using your MS-DOS personal computer

Data Consulting Associates
18000 Coleman Valley Road
Occidental, CA 95465

(707) 874-3067

THE GUERRILLA MARKETING NEWSLETTER

A Powerful Newsletter That Is Guaranteed to Increase Profits with Low-Cost Marketing

- A combination of strategies, tactics, news and insights designed to give you that important competitive edge.
- So potent and proven in action that this bi-monthly newsletter is fully guaranteed. First year subscription — $49.
- Just one idea in one issue can produce enough profits to cover a 10-year subscription.

To subscribe or for a free detailed brochure, call or write:

The Guerrilla Marketing Newsletter — It's tough to succeed in marketing without it!

GUERRILLA MARKETING INTERNATIONAL
260 Cascade Drive, P.O. Box 1336
Mill Valley, California 94942 USA
Toll-free 1-800-748-6444

WINE BOTTLES BOUGHT & SOLD
GLASS STERILIZATION
NEW CARTONS & DIVIDERS

ENCORE!

(510) 234-5670

860 So. 19th Street, Richmond, CA 94804

A non-profit educational organization offers understandable, self-educating manuals on wine making, grapegrowing and wine tasting.

Guide to Wine Grape Growing—McGrew. . .$5.00
Basic Guide to Pruning—McGrew. . .$5.00
Still Wines from Grapes—Phillips. . .$4.50
Wine Blending—Jackisch. . .$3.50
Wine Acidity—Plane & Mattick. . .$2.50
Sulfur Preservation—Mowbray. . .$2.50
Elements of Wine Tasting—Mowbray. . .$3.50
Organizing & Conducting Wine Tastings—Long. . .$3.50
Sensory Identification of Wine Constituents—Jackisch. . .$3.50

Please include $1.95 for postage/handling. Payment in U.S. funds *only.*

AMERICAN WINE SOCIETY® 1967

Send check of money order to:
AMERICAN WINE SOCIETY
3006 Latta Road • Rochester, New York 14612

AWS is a membership organization offering a quarterly *Journal*- Dues $32.00/year. Request information.

MARKETPLACE

Cooperage

Premium Quality Wine Barrels
French Oak and American Oak

Independent Stave is a third-generation cooperage. Total commitment to our customers' satisfaction has made us the largest barrel producer in the world.

- We offer:
- French oak and American oak of the finest quality.
- Shaping and toasting over an open oak wood fire.
- Selection of grain coarseness and toast levels.
- 200 and 225 liter barrel capacity.

Check our cooperage rates and find out how much money you can save!
Let **Independent Stave** fill your French oak and American oak wine barrel needs.

Independent Stave Company
1078 S. Jefferson, PO Box 104, Lebanon, MO 65536 • **417/588-4151**
4391 Broadway Dr., American Canyon, CA 94589 • **707/644-2530**

Problems in the Bottle?

DON'T DUMP IT: DECANT IT!

Every day, thousands of gallons of premium California wine are reclaimed from the bottle for various reasons. Current methods are costly, inefficient, and invariably damage the wine.

• EFFICIENT • ECONOMICAL
•CONFIDENTIAL
•QUALITY ORIENTED

FOR MORE INFORMATION CALL:
DECANTER/ENCORE!
860 So. 19th Street, Richmond, CA 94804 (510) 234-5670

JANET FLETCHER J. TERENCE MCGRATH

Promotional Literature for the Wine and Food Industry

458 63RD STREET OAKLAND, CA 94609
TELEPHONE AND FACSIMILE: 510-655-4459

- CUSTOMER NEWSLETTERS
- EMPLOYEE NEWSLETTERS
- BROCHURES AND CATALOGS
- POINT-OF-SALE MATERIALS
- TRADE COLLATERAL
- RECIPE DEVELOPMENT/RECIPE BOOKLETS
- EDITING AND GHOSTWRITING
- WINE LABEL COPY

From Concept and Writing to Design, Production and Printing

Wine East

Keep up-to-date with the grape and wine industry in Eastern North America!

With more than 525 wineries and more than 80 percent of the U.S. Senate located between the Rocky Mountains and the Atlantic Coast, wine professionals and alert consumers are discovering the importance of keeping informed about this rapidly expanding wine region. Published bi-monthly, *Wine East* contains in-depth features on winemaking, grape growing and marketing; research updates, news events; and a responsible editorial viewpoint on political and social issues related to the wine industry.

Subscription rate: $18.00 for one year ($26.00 in Canada and overseas, payable in U.S. funds). Sample copy free upon request.

L & H Photojournalism
620 North Pine Street
Lancaster, PA 17603

Eastern Wine Publications

Electrical Engineering

Complete electrical design services for new and exisiting winery facilities. Preparation of drawings and specifications for the following areas:

- Main Service Design
- Computer Grade Power Supplies
- Motor and Pump Control
- High and Low Voltage Distribution Systems
- Heating, Ventilation, and Air Conditioning Power and Control
- Micro-processor Control of Crushing, Pressing, and Tank Refrigeration Operation
- Well and Waste Water Pumping Systems
- Office and Warehouse Lighting and Power Distribution
- Tank Lighting and Valve Control
- Refrigeration Power and Control
- Bottling Line Control

Arthur Engineering, Inc.
6656 Owens Dr., Pleasanton, CA 94588
415/ 460-0845

Riparia Press Announces an Impending Addition To Your Library

GRAPE ROOTSTOCKS WINEMAKING IN THE VINEYARD

By Lucie Morton Garrett

Linking vine with soil, grape roots are out of sight, but they should never be out of mind!

Become a founding customer and guarantee receipt of the prepublication discount offer, send the form below to:

RIPARIA PRESS: P.O. Box G, Broad Run, VA 22014
or FAX: 703-347-2601

NAME:

ADDRESS:

VINEYARD INVESTIGATIONS

Paul W. Skinner, Ph.D

- *Vine Nutrient Analysis*
- *Soil Fertility and Water Management*
- *Soil Data Interpretation*
- *Soil Identification & Cultivar Selection*
- *Vineyard Problem Resolution*

Write or Call for more information
1015 Village Circle Winters, California 95694
(916) 795-1406

Marketplace advertising in *PWV* is a great way to reach readers interested in your services or products. It's economical and effective.

Contact: Lauren MacFarlane at (415) 472-5400 for information.

Quality
Commitment & Tradition

Dedicated Service to the Wine Industry for over 60 years. Our complete line of packaging materials includes bottles, plastic top stoppers, corks, capsules, wirehoods and champagne corks. For your packaging needs, contact Latchford today.

Latchford Package Company
Anchor Glass Container Corporation

Napa: 1810 Soscol Avenue, CA 94559 (707) 258-6190
Tampa: 4343 Anchor Plaza Parkway, FL 33634 (813) 884-0000

CTCOR

Member of CTCOR
Centro Tecnológico da Cortiça